MONTHLY

JOURNAL OF AGRICULTURE.

VOL. II. JUNE, 1847. NO. 12.

INDIAN CORN:

WHAT IS KNOWN AND WHAT IS WANTED TO BE KNOWN ABOUT IT.

"Fell Famine sickens at the o'erflowing good,
And, hissing, flies the native land of food."

If any should ask what is our warrant for encouraging inquiries like the following from a correspondent, we answer: 1. The duties that belong to our very position. 2. That volume on volume may be produced to show that for the *last thirty years* we have been instigating inquiries on every branch of agricultural industry; and, 3. As to this particular subject, as far back as March, 1822—twenty-five years ago—a friend in Massachusetts made a call upon us, saying: "I 'beg leave to inquire in behalf of myself and others, of you and your correspond-'ents, what is the relative value of barley, buckwheat, *Indian corn*, oats and rye, 'as food for hogs, horses and neat stock. Satisfactory answers would enable us 'to ascertain what particular part of our surplus produce might be offered for 'sale consistently with good husbandry."

In publishing the above inquiry in the American Farmer, we remarked: "The object at which our correspondent aims is, we think, entitled to the notice 'of *Agricultural Societies*. They might call for and reward the most judicious 'sets of experiments connected with the subject; and we persuade ourselves to 'believe that it is within the power of any one of these Associations to com-'mand satisfactory and useful answers to these questions; but meanwhile we 'would very gladly receive such information in the case as any of our readers 'may be disposed to furnish."

Such were our published sentiments in 1822—such are they in 1847. The references and extracts which we shall now make are not intended to show that anything new can be said on the mere practical part—the cultivation—but they will show what progress *has since then* been made in the application of sciences to these subjects. We have no longer to inquire in vain for the relative value and nutritive properties of wheat, corn, rye, barley, &c. Thanks to the votaries of science and the "book knowledge" they give us.

Extract of a Letter to the Editor of The Farmers' Library.

"The calculation is that we shall raise this year five hundred millions of bushels of corn, and if so, then there will be four hundred and ninety-nine millions of bushels of ears thrown away. Now the question of whether cobs are of any value or not ought to be settled. You know that corn-blades are considered of more value than hay at the South for their race-horses; and our farmers here feed blades and stalks to their cattle, and some few

also grind the cob and say it has a value—that it is worth five or six cents a bushel; others say it is of no value. It is a shame that neither the cob, husks, blades or stalk have been analyzed; all should be tested to see if there is any nutritive matter in either, and what per cent. The ashes, also, should be analyzed to see the kind of salts taken from the earth in raising corn, so that the proper manure can be supplied to raise the largest quantity per acre. I wish you could persuade Mr. Teschemacher to undertake this investigation. I know of none connected with Agriculture of more interest. Suppose that the cob, for nutritive value, is worth but two cents per bushel, we can save ten millions of dollars per year."

When it is considered that Indian corn constitutes one of our most important staples, that it is produced in a single State to the value of more than $11,000,000, and that it is cultivated more or less over the whole extent of the United States, it will be admitted that every new question that can be raised about it ought to command attention. Hence we heartily agree with our respected correspondent, that the interests of American Agriculture demand that every part of this noble plant, which should emblazon our national arms rather than the *bird of prey!* should be thoroughly analyzed in all its parts, and the results presented in every aspect that may serve to illustrate its value. We will venture to say that any plant occupying in Europe, as maize does in America, the front rank in the catalogue of vegetable diet for man and beast would have been long since subjected to all the tests that vegetable chemistry could apply. Thus we should have learned, with as much exactness as science could determine, the sort of manures most congenial to its growth; how much, for example, of potash, lime, magnesia, phosphates, silica, &c., a crop of any given number of bushels carries off from an acre of land, and how much of these are appropriated respectively to the different parts of the plant—its leaves, grain, husk, cob, &c.—and, finally, how much there is of nutriment for man or beast in a given quantity of all these parts. The question now raised is as to the *value of the cob;* a question of palpable importance when we consider that they will amount this year, probably, as stated by our correspondent, to 500,000,000 of bushels, unless it be that the crop may be greatly diminished, as in the year 1816, by the very cold weather of the spring so far—for it is known to be a plant that, of all others, delights in heat and moisture.

But there are other points in the physiology and value of this grain, besides the virtue of the cob, that require to be elucidated; and here we may be allowed once again to remark on the slow progress of Agriculture as compared with other manufactures, for it is in reality a *manufacture of food* out of raw materials, worked and manipulated by hand and animal and other powers. See in the meantime what improvements have been made in glass, iron, paper, in printing, and, in short, in all other arts and manufactures! In studying the causes of this difference, the history of Agriculture as well as of these other arts and manufactures, points to our neglect, in all our schools, of chemistry and of mechanical philosophy in their obvious relations to Agriculture. May we hope that a "better time is coming?" But to return.

What we want in reference to Indian corn, over and above an exact knowledge of the constituents and nutritive value of the *cob*, is to have, as before said, *all its parts* analyzed—and the blades, both in their green and in their cured state. It is too much to be desired that we should know the weight that each part of the plant will yield on an acre, in proportion to any given measure or weight of grain. How else can the farmer tell the quantity of nutritive matter, and hence the value of the product of his labor and capital when applied to corn, in comparison with other crops? By the analysis made by Societies and other Institutes, and by scientific and public spirited men in Europe, especially by order of the Duke

of Bedford, all these questions have been solved in respect of all their staple crops—grains, grasses and vegetables; so that not only their weight and constituent elements in a dry and green state are known, but it has been ascertained, as we can show, how all these different sorts of food contribute—some to the secretion of milk, some to the formation of bone, others to the production of fat, muscle, &c.

All this has science lately developed for Agriculture in Europe, recording the results in books within our reach, forming the "book knowledge" so much derided by some very wise people—in their own conceit. Even our own great staple, Indian corn, which dire calamity has forced on the people of Europe, we shall see, in the sequel of these remarks, has been there somewhat more thoroughly analyzed already than in our own country. Why is it that with all our Institutes, Societies and Associations, we are thus left to trans-Atlantic lights for information? How much more honorable would it be to kindle the lamps on our own altars, instead of wasting our means to have it shown once and again that certain things in the way of large crops and fat beasts can be effected which have been done ten thousand times before? Rather, say we, let the new lights which Agriculture, yet more than other arts, requires, be anxiously sought for; and to that end let a scale of liberal rewards be framed with due study and circumspection, for those who will find and exhibit these new lights for its farther improvement. In this case of Indian corn, however, it is not so much that we need experiments to be made in its cultivation as that certain other facts be ascertained.

The plan should be to take any single acre of good fair yield—say 60 bushels, more or less; and then, what it is desirable to know is—first, How much the land which produced that given quantity of grain yields, also, in bulk and in weight of *cobs*,* and in weight of *shucks*, tops, blades and stalks, suppose the "tops" to be cut off above the top ear, as usual. We will presently show why these facts, as respects the tops, blades and shucks of corn, are of great importance as sources of national wealth—ay, as furnishing, *in themselves*, a claim to influence in our national councils far beyond the whole stake of certain other classes who *cause themselves* to be respected and cared for.

To come to the point, then. We would respectfully suggest that the American Institute, or the Agricultural Association, or the State Agricultural Society, should nominate some two, or at most three, well known and respectable farmers in States wide apart, to whom should be offered a prize of $100, or its equivalent in plate on which this king of plants should be engraved—giving them instructions to take a fair average acre of corn land, and very accurately weigh and measure the grain, and weigh the blades, tops, shucks and stalks. Though we are aware that in many States the whole is cut off at the root, and the blades not separated from the stalks and tops, yet it is desirable that for this experiment it should be done, especially in the southern States, where the system is different, and where the blades are cured and fed separately from the other parts of the plant. The practice is, when the blades are ripe and before they get too dry, to pull them from the stalk up to the topmost ear, cutting off the "tops" just above the topmost ear, and saving and feeding them separately. Some experiments of Mr. Ruffin showed some diminution in the weight of the grain from cutting the tops before the grain was fully ripe, and the philosophy of the

* This, as relates to the proportion between the grain and the cob, has since been done by Mr. Colt, as the reader will presently see.

case would warrant such a result. We have not his invaluable "Farmers' Register" to refer to; but, perhaps from the prejudice of early associations, we confess to a partiality for the old and still very much the southern practice of pulling and carefully curing the blades and cutting the tops, without undertaking, however, to decide upon and recommend the practice on the score of actual economy. It is only by thus offering adequate inducement that we can prevail on some reliable farmers to establish all these facts by careful experiment, making the quantity of grain the standard of reference and comparison; and that we can get to know with sufficient accuracy how much there is of food and manure to be had in the *whole plant*, from a given measure of land, and be thus prepared to measure the aggregate value of all that our capital and labor produce when bestowed on this crop.

As before intimated, this is not one of the cases that admits of a premium to excite competition. The object is simply to come at certain facts of plain and obvious importance, the ascertainment of which requires care and zeal, and, at the same time, involves a degree of pains and expense that could not fairly be expected without adequate inducement. There is no need, however, of setting one hundred to doing what one can do as well, and when only one can be compensated for the trouble.

Does any one believe that a merchant or manufacturer, interested in a matter connected with his business to the amount of the value to the farmer of any one of these items, would rest until he had ascertained precisely how it bears on his *balance sheet?* Why, we will venture to assert that the millionaires, proprietors of the great Middlesex manufactory at Lowell, can tell how much a gallon more or less of oil on the gudgeons of their machinery, or one mill in the price of wool, adds to or diminishes the cost of a yard of their cloth!—And here we take leave to protest against the temper evinced by a member of the New-York Farmers' Club, when this question of the value of the cobs of Indian corn was raised there not long since, whereupon he, according to the uncontradicted reports of the papers, remarked, with more flippancy than discretion, that the best way to determine their value was to throw, at once, the grain and the cobs to the hogs for their decision! For one we feel indebted to the author of the problem for urging it on the attention of those whose province it is to illustrate all such questions. But as there is a vast difference in the relative proportions of grain and offal, or fodder, incidental to a given measure of corn in different latitudes, these measurements would require to be made in the South or West, as well as in the North or East. Two, or, at most, three points, however, would answer for the establishment of data to rectify and guide practice throughout the country. It is quite probable, for example, that no stalk of the corn of Mr. LATHROP of Springfield, Massachusetts, which yielded one hundred bushels to the acre, in the list given in the next chapter, was higher than Hon. JOHN WENTWORTH in his stockings; whereas that which, in Kentucky, gave Mr. WILLIAMS one hundred and fifty-eight bushels could probably not be reached by old Rough and Ready, with the point of his sword, seated on his war horse.

We were informed by a correspondent in Dorset County, Maryland, in 1828—(see American Farmer)—that he grew several acres of corn eleven feet high; and in the same journal, in 1830, there is a statement of a stalk of corn then growing on the farm of Andrew Clark, of Columbus County, Pennsylvania, measured by Col. Jos. Paxton in the presence of Joshua Loyd, of Ohio, and David Clark, of Columbus, Pennsylvania: "Hight of stalk, from the surface of

'the ground to the top, without erecting the top blade, 14 feet 6 inches; circum-'ference of the stalk between the joints, the blade stripped off, 7¾ inches; 'length of blade, put out 8 feet from the ground, 4 feet 1 inch; breadth of ditto, '7½ inches." Col. Paxton had no doubt it would reach the length of 17 or 18 feet, as no tassel had then made its appearance.

All these facts go to show the propriety of having several measurements, and that the same system of gathering and curing the corn and fodder may not suit all latitudes alike.

We would therefore suggest, with all deference, to the American Institute to offer two or three premiums of $50 or $100 each, to be placed in the hands of gentlemen of known character and zeal in the cause, living in latitudes wide asunder—say with Presidents of Agricultural Societies in Massachusetts and Virginia, Tennessee, or Kentucky, or Ohio—to be by them offered to some practical farmer of their acquaintance, who might be relied upon to take this matter in hand *con amore*, and let us have the exact quantities, as here set forth, of *all parts and substances* pertaining to an acre of Indian corn of average product of grain; for once knowing that a given amount of these different substances was incidental to a given amount of grain, a man would only have, ever after, to ascertain how much grain he made to know, with sufficient exactness, how much and what was the value of all the rest of the crop.

There are rules laid down for determining how much grain a given space filled with the ears will yield. The first we remember to have seen was by BORDLEY, (in his "Husbandry,") one of your book farmers again, who, though himself not successful, did more good to agriculturists, by causing them to *think*, than fifty of your "practical men" who come along in the wake of mechanical and scientific discoveries, and grow rich on the practice of theories they once denounced. A correspondent, referring to Bordley, says: Multiply the length, depth and width together; the solid measure multiply by 8; the quotient will be about one per cent short. Take any box, therefore—say 3 feet square and 2 feet deep—3×3=9×2=18×8=14·4 bushels and a fraction. The following is given in the American Agriculturist as from the Western Cultivator:

TO MEASURE CORN IN THE EAR.—In a bulk of corn in the ear, measuring 12 feet long, 11 feet broad and 6 feet deep there will be 316 bushels and 8-tenths of a bushel of shelled corn, or 633 bushels and 6-tenths of a bushel of ear corn, as:

12×11=132×6=792×4=316·8
12×11=132×6=792×8=633·6

The decimal 4 is used when the object is to find the quantity in shelled corn, because that decimal is half of the decimal 8, and it requires two bushels of ear corn to make one of shelled corn. In using these rules a half bushel should be used to every hundred, that amount of error resulting from the substitution of the decimals.

There is a considerable difference, however, between different species of corn. The Editor of The Farmers' Library well remembers that his father, who was always a corn-seller, in old Calvert County, Maryland, and cultivated the yellow gourd-seed, taking pains to select for seed perfect ears having the greatest number of rows, always demanded pay for *six* bushels for every ten bushels of ears measured into an ox-cart, as was the fashion, and if the gentleman hesitated he had it shelled to satisfy him.

Just as we had written thus far, we received a letter from R. L. COLT, Esq., of Paterson, who states—"As you requested, I took one bushel of best kind of Jersey corn in ears, carefully shelled it, and had half a bushel and six quarts of shelled corn and a heaped half bushel of cobs; so, for all practical purposes, you can say that a struck bushel of shelled corn will furnish a heaped bushel of cobs.

I know a clever man who tells me that 100 pounds of corn cobs will give as much whisky as 100 pounds of potatoes. The half bushel of cobs weighed 7 pounds; a bushel of cobs, of course, 14 pounds; and, of course, the 500,000,000 bushels that will be made this year will be equal to about 35,000 tons."

Now, simple, and yet important, as these facts are, and easy of ascertainment, we do not remember to have seen them stated before, though they may have been. We now know, nearly enough for all useful purposes, the measure and the weight of cobs from an acre of corn that gives a certain quantity of grain. A crop of 100 bushels of shelled corn gives 100 bushels, and 1,400 pounds weight of cobs. Very well, then, as the sailor says, "belay that," and let us proceed. We still want (except as we shall hereafter show the information to have been partially supplied) the weight and the analysis of the shuck perhaps even more than of any other part, for the reason that this particular part of the plant seems to have been altogether overlooked, as far as we are aware of, while we know that most farmers in Maryland and Virginia, and farther south, depend very much on it as winter provender for their *cattle*, esteeming it to be more nutritious and valuable than wheat straw. Why should it not be as carefully analyzed as straw, or any of the grasses, and its weight per acre be ascertained?

Mr. Leake, of the Pedee Agricultural Society, South Carolina, some years ago reported that "an acre of corn, when first cut for fodder, weighed 156,816 pounds—over 70 tons—and that when thoroughly cured for forage, the same weighed 27,297 pounds—over 10 tons. It was thought the dried forage would have been something more had not the corn been cut too early." From his using the term *cut*, we suppose he included the top blade, stalk and shuck. Mr. Tucker, in his "Progress of the United States," reckons 20 pounds of *blades* to a bushel of corn. 25,000,000 acres, which it would take to yield 500,000,000 bushels, at 20 bushels to the acre, would then give 250,000,000 tons; but suppose the average yield of corn fodder, including the cob and shuck, to be but 3 tons to the acre, instead of 10 tons, and the value to be but 20 cents a hundred, or $4 a ton, and we have $300,000,000 as the value of our corn fodder alone—is it too much to assume that it is worth that, if we add, for deficiency, the crop of beans, peas, feathers, sumac, broom-corn, honey and flax-seed, omitted in the Census? What intelligent farmer would be at a loss to get the value of 20 cents out of every 100 weight of corn fodder? Judge Buel tells us of a Vermont farmer who pronounced the corn fodder of any acre of land to be equal in value to the *hay* that the same land would produce; and he himself says he carried his cattle through the winter on corn fodder in as good condition as on hay. In an address to the Maryland Agricultural Society, we remember it to have been stated by its then President, Hon. Robert Smith, a polished scholar and gentleman of the good old school, and the most popular Secretary of the Navy we have ever had, that corn-stalks, instead of "wasting their sweetness on the desert air," might, if well cured, be cut up and steamed, and made nourishing food for cattle through the whole winter.

Surely it were superfluous to insist that the facts which these measurements and analyses of corn fodder and corn cobs would bring to light would be of great value, not merely for the practical guidance of the farmer, but for the use of statistical writers in their expositions of our national industry. To him who confessedly stands among these in the front rank, Professor Tucker, we are indebted for an observation in his "Progress of the United States," sufficient of itself to demonstrate at once the great value of the *blades* alone of the corn plant, and

the glaring oversight and neglect to make any mention in the Census of such an important item of agricultural contribution to the natural resources—an oversight that will continue, in a thousand forms, to characterize the proceedings of the Government and to degrade the landed interest until farmers shall manifest more self-respect, and cease to have their eyes blinded by the filth or dazzled by the glittering spoils of party.

"It is proper to remark," says Professor Tucker, "that the Census omits several [agricultural] products whose aggregate value would make no insignificant addition to the total amount. Among these are: 1. Blades of Indian corn, an excellent fodder for horses and cattle, and which, estimating twenty pounds for every bushel of grain, amounts to 3,775,000 tons, worth $37,750,000. 2. Peas and beans. 3. Flax-seed. 4. Broom-corn. 5. Sumac. 6. Honey. 7. Feathers."

Supposing, then, the estimate of 500,000,000 bushels for 1847 to be correct, and our crop of corn blades alone would be five millions of tons weight, which at 50 cents a hundred, or $10 a ton, would amount to $50,000,000.

Here, then, we have in a single item of agricultural produce not even alluded to in our national exhibit of the sources of our wealth, an amount about equal to the whole product of mining and fishing industry in 1840. The annual product of our agricultural industry, by the last census, including the items which, as we have seen, are altogether omitted, was not short of $700,000,000, taking the Census to be correct; that of the mining interest, including iron and coal, $42,358,761—the farmer contributing more by 16 to 1 than the iron-master and the coal monger; and yet we will venture to say that the voice of the latter classes is heard sixteen times as far and as quickly, and has sixteen times as much weight as the farmer's with our Representatives of the landed interest in Congress! And is it to be wondered at, since not a single Society can be persuaded to move, or a paper be prevailed on to assert their political rights, *as a class?* But let us return to the point from which we started, to wit, the necessity there is for a more thorough examination into the value of the *cob* of Indian corn, to ascertain and compare its nutritive and its fertilizing properties.

In referring to the American Institute we reckon with confidence on the public spirit, the enlightened views, and the great pecuniary and intellectual resources of that national and popular Institution to take up all such questions with avidity, and referring them, with ample remuneration, to men of known competence and appliances for their examination, they will not only retain their popularity, but acquire what yet more they covet, solid and enviable renown for having added essentially to the knowledge and capabilities of the agricultural community. It is in this confidence that though urged again and again to refer this and other kindred subjects, if necessary, to particular persons, of undisputable excellence as men of science, with sometimes liberal individual offers of pay for the analysis, we have not felt that we could send abroad for information, without implied insensibility to the adequacy of institutions on the spot, which pride themselves on their adaptation to the performance of such service to American Husbandry, and their readiness to render it. We should not fear to be reproached for overrating their means or their disposition, even were we to proclaim that either of these Institutions to which we have referred will undertake to have analyzed any substance that may be sent to them for that purpose, sanctioned by an Agricultvral Society as to its important bearing on the general interests of Agriculture; for if (as ought not to happen) such substance should have been previ-

ously analyzed, without the fact being known to such Society, the answer would be but a reference to the result of such analysis already made.

Were it possible to give to the problem in this case, or any other agricultural question, a *warlike* attraction, to connect it in any way with the shedding of human blood and the shouts that follow as it flows; could we, as in the case of the "*gun cotton*," raise the question whether corn cobs could not be rendered as combustible and destructive as cold steel or gunpowder, then should we bring it, forsooth, within the pale of the Constitution, and every head of every department of the Government might easily be put in requisition, as in that case, with the Chief Magistrate in front, to lend the sanction of his name and scholarship to the results of analytical investigation in every form that the science of the military schools could suggest. In sober earnestness, and for the benefit of Agriculture, we really wish that some speculative genius would get out a patent for turning corn cobs and corn shucks into munitions of war; for then before the 4th of July we should learn more of their real substance and proportions than for the vulgar uses of Agriculture will be found out in the next forty years.

In the mean time we must endeavor to hold up some of the lights which have already been elicited by scientific and public spirited individuals at home and abroad. Exactly twenty-eight years ago we published the very interesting paper which follows, on the distillation of the meal of Indian corn and cob, as compared with that of the grain alone, and on the advantages of grinding both together as food for horses. It was from the pen of Peter Minor, of Albemarle, Virginia, a man of rare acquirements and usefulness, whose modesty was equaled only by his merit, and was addressed to that eminent agriculturist and philanthropic citizen, General John H. Cocke, Vice President of the Society.

Ten bushels of the corn and cob ground together were taken, which weighed 367 lbs., and ten bushels of pure corn meal were taken, which weighed 400 lbs. They were both brewed or mashed on the same day, and distilled separately, with great care and accuracy. The product of the pure corn was 18 gallons, and the product of the mixture, or corn and cobs, was 13 gallons of spirit, each of the same degree of proof. Now, it is generally agreed that the cob constitutes about one-half of the bulk of corn; in other words, we give two measures in the ears for one shelled, and the cobs are either used as fuel or thrown away as of no value. If this were true, the product of the mixture then should have been only 9 gallons, which is the half of what the pure corn produced. But 13 were obtained, 4 of which must have been, of course, extracted from the cobs; or if we estimate its nutritive power by the quantity of spirit, it is clear that whenever we shell ten bushels of corn, and throw away the cobs, we throw away a portion of food equal to the difference between 9 and 13, or nearly one-half.

As it relates to the respective weight of each, the difference in favor of the mixture is still greater, the pure meal being more than three pounds heavier in the bushel, and I am inclined to think that the product of the mixture would have been greater if the experiment had been made earlier in the year, before the cobs had lost much of their substance by evaporation, (my experiment was made in the month of March.) The distiller mentioned an important fact that occurred in the process. He found that the fermentation of the mixture took place much sooner and was perfected a day or two earlier than the other. His expression was that it mashed much easier and better than anything he had tried before, and which he accounted for by supposing that the particles of the cob being lighter and coarser than those of the grain, but mixed together, prevented too close and heavy a deposition of the mass at the bottom of his brewing-tub.

These facts are particularly worthy the attention of distillers, and I think are perfectly satisfactory as to the value of corn cobs in the production of spirits. Whether they are equally so in relation to their value, as a food, is left to the chemists to determine. We are aware that the saccharine particles, or those yielding spirits, are not the only constituents of nourishment. We know that oily and mucilaginous particles are the component and necessary parts of food. But which preponderates, or in what proportion to each other they are required to exist, in order to constitute a healthy food, I do not pretend to know. It is certain, however, that the latter two do exist, in some degree, in the cobs of corn; and since the experience of all who have tried it, concur in reporting it to be the most healthy mode of feeding corn, perhaps it will not be unfair to infer that they maintain a due and proper proportion to the

spirit. If so, the experiment must be satisfactory, and the conclusion I have drawn from it undeniable.

But besides the actual economy, there is another advantage in this way of feeding corn, which ought to engage the attention of every farmer. It is notoriously true that the unground grain of corn is heating to the stomach of all animals, and of difficult digestion, producing colic and other inflammatory disorders, particularly in horses, which tend greatly to shorten their lives. They are deprived of the benefits derived from the stimulus of distension, (so necessary to the proper health of all animals,) by being unable to eat a sufficient bulk to produce it before they become gorged. But when ground into meal along with the cobs, and mixed with cut hay or straw of any kind, this necessary distension is produced, without any danger of disorders arising from eating too much. It is now eight years since I have been in the habit of feeding corn in this way, and out of six to ten horses which I have annually kept in that time, there has been but one case of sickness among them, which was a slight colic. Indeed, since I have lived in this country, which is now eleven years, there has been but one death among that description of stock on my plantation, and that occurred to a mare with a young foal, in a distant clover-field without having been fed for many weeks, and which took two or three days before it was known. This uncommon health of my horses I attribute in a great degree to the use of ground food.

Judge Buel, referring to and quoting this statement of Mr. Minor, remarked: "The cobs of corn undoubtedly contain much nutriment." "We have," said he, "besides [this proof from Mr. Minor], abundant testimony in the practice of eminent farmers, of the *utility of feeding cob meal to animals*, always mixed, we believe, with the meal of corn or oats;" and he published a note from Mr. Robert White, of Shrewsbury, N. J., who says, "A pretty extensive feeder in the Philadelphia market once told me that a bushel of meal made of corn and *cobs* was quite equal to a bushel of meal made of corn and *oats;* that his cattle throve as fast on the former, and that they were stalled (cloyed) on it."

Does the reader require again to be reminded of the pertinency of these questions in their relation to his *substantial interests as a cultivator?* We should trust not. Does he not see at once that on the ground of right to voice and influence in the public councils in proportion to his contributions to the common stock of national wealth, the very offal of his corn crop gives him a title to weight in Congress equal to any other classes? We all know that while the results of mercantile and manufacturing and mining industry can be ascertained to a fraction, because those who follow it have the good sense to keep *exact accounts*, (and are always prepared and prompt to expose any attempt by men in authority to do them injustice;) in agricultural affairs, on the contrary, all is carelessness and guess work. Alas! farmers seem born to be chiseled on every score. And now, without farther digression, we proceed to

THE ANALYSIS OF INDIAN CORN.—And, first, as to the *ash* of the cob, we find in our old American Farmer, 17th December, 1819, a writer under the signature J. M., and whom we cannot now identify, who says: "It may not be amiss to add, respecting the corn cob, that when burnt it will be found to yield a product of almost pure potash."*

Another correspondent of the same period says:

"CORN COBS COMPARED WITH PUMPKINS.—I have acquired a little smattering of chemistry and have analyzed the *cobs* of corn, and the small yellow pumpkin; the results are that corn cobs contain one-twentieth of their nutritive matter, and pumpkins one twenty-fifth of their weight of matter, nutritive to animals. If my analysis be accurate, it will then appear that farmers generally are in the habit of throwing away an article (cobs) preferable as food for stock to common turnips, and nearly equal to Swedish turnips," [meaning, doubtless, weight for weight.]

500,000,000 bushels of Indian corn will furnish, according to the exact proof supplied by Mr. Colt, 7,000,000,000 pounds, the one-twentieth of which gives

* 100 parts of the ashes of the following substances contain—wheat *straw* 9·2, oat straw 24·5, clover straw 26 6, of potash.

35,000,000 pounds of nutritive matter now thrown away, which at 2 cents a pound is $7,000,000.

Neither having at hand or being aware of any other analysis of the cob, as to its ashes or nutritive matter, we now submit for future convenient reference as well as present use, protracted as this dissertation has become, the following:

ANALYSIS OF THE GRAIN OF INDIAN CORN.—The only authentic American analysis that we aware of is the following by Dr. DANA, published some years since in the New-England Farmer.

	100 *lbs. of Corn.*	*Ruta-Baga.* fresh dug.	*Potatoes.* fresh dug.
Contain of flesh forming principles—gluten, albumen, &c.	1·26	1·	2·27
Fat forming principles—gum, starch, sugar, woody fibre, oil, &c.,	88·43	13·	24·34
Water	9·	85·	72·
Salts	1·31	1·	1·39

We give also the following from the American Agriculturist.

There are also two Tables in Thomson's Chemistry of Organic Bodies, published in London in 1838. That of Bizio was made as early as 1823—Professor Gorham's, we believe, somewhat earlier.

Analysis of 100 *parts of Maize, by Gorham.*

	Fresh.	Dried.
Water	9	
Starch	77	84.599
Zein (gluten)	3	3·296
Albumen	2·5	2·747
Gum	1·75	1·922
Sugar	1·45	1.593
	94·70	94·157

Analysis of 100 *parts of Maize, by Bizio.*

Starch	80·920
Zein (gluten)	5·758
Extractive	1·092
Zimome	0·945
Gum	2·283
Sugar	0·895
Fat oil	0·323
Hordein, (nearly like starch)	7·710
Salts, acetic acid and loss	0·074
	100,000

Lastly we give, from Johnston's Agricultural Chemistry, Tables, one of which embraces the "*straw*" or blade of this plant, grown on different soils.

Composition of the ash of the grain and straw of Indian corn (Zea Mais.)

The grain of maize leaves about 1½ per cent. of ash—the straw from 2½ to 6½ per cent.

The Grain.—Few analyses have hitherto been made of the ash of the several parts of this plant. The only two analyses we yet possess of the grain are the following:

	Fromberg. U. S.	Letellier. Bechelbronn.	Mean.
Potash	26·63	30·8	32·48
Soda	7.54		
Lime	1·59	1·3	1·44
Magnesia	15·44	17·0	16·22
Oxide of iron	0·60		0·30
Phosphoric acid	39·65	50·1	44·87
Sulphuric acid	5·54		2·77
Chlorine	0·36		0·18
Silica	2·09	0·8	1·44
	99·44	100	99·70

Straw.—Of the straw or stem of the maize, we have two analyses from plants grown on different soils. The ash of the several parts of this plant, however, and at different ages, must differ so much in composition that little can be inferred from the following differences as to the effect of diversity of soil.

Composition of the ash of maize straw, grown on two different soils in the neighborhood of Grätz. No. 1 on a soil formed from the debris of primary rocks, No. 2 on a mountain limestone soil.

Hruschauer.—	No. 1.	No. 2.	Mean.
Potash	14·46	4·78	9·62
Soda	39·92	12·69	26·30
Lime	4·93	11·00	7·97
Magnesia	1·84	11·44	6·64
Oxide of iron	0·90	0·73	0·81
Phosphoric acid	11·76	22·39	17·08
Sulphate of lime	1·01	1·37	1·19
Chloride of sodium	6·29	0·55	3·42
Silica	18·89	35·05	26·97
	100	100	100
Per-centage of ash	2·30	6·50	4·40

Between these results we observe great differences both in the total per centage of ash left, and in the proportions of every one of the constituents which the ash contains. This is by no means unexpected, but it illustrates a fact to which I shall presently draw your attention more particularly, that our knowledge of the inorganic constituents of plants—of the functions performed by them in the several parts of plants—and of the proportions required most perfectly to perform these several functions—is yet in its infancy.

The crop of Indian corn varies, I believe, more than that of any other grain. Crops of nearly 200 bushels, an acre are recorded in some of the journals of the United States, but 60 bushels, each 60 lbs. is considered a good average return even in favorable districts. We have no accurate returns of the proportion which the weight of the straw and leaves bears to that of the corn of the same plant.

Sixty bushels of corn at 1½ per cent. of ash

would carry off the land 54 lbs. of inorganic matter, consisting of

Potash and soda	16·6	Phosphoric acid	27·1
Lime	0·7	Silica	0·4
Magnesia	9·2	Total	lbs. 54

According to this analysis of Letellier, the ash of the maize corn consists almost entirely of the phosphates of potash, soda, and magnesia.

We will take an early opportunity of presenting some other views of the value of the Indian corn and other crops, not so much that anything we may say will be new or important in itself, as to impress on the cultivators of the soil the impregnable ground on which they stand, and the claim it gives them, we will not say to sue for, but to *demand*, a corresponding provision, in the laws of the land, for enlightening and benefiting their pursuit, as far and in full proportion as the Government undertakes to act at all for the protection and benefit of other interests, by surveys, Tariffs and *Schools*. *If* Congress can lay out 8 or 80,000 dollars, or one dollar, for maintaining military *schools* in which are taught all the sciences and foreign living languages, it can do the same for the art and business of Agriculture. *If* it can appropriate $3,000 for collecting and disseminating agricultural knowledge in the shape of essays and statistics, it can do the same for having information diffused in schools and by lectures. Let our military schools be maintained and the country filled, as now, with officers qualified to take command and drill the volunteers in case of war. This will altogether, as experience shows, supersede the necessity of *keeping up large armies*. Our military, since the war with England, has cost us about $500,000,000! Let four millions a year, or the proceeds of the public lands, be taken from or added to our military appropriations, and with that, in ten years, we might have provided for every country school in the United States teachers as well qualified to give instruction in agricultural chemistry, botany, geology, natural history, road making, bridge building, rural architecture and surveying and mechanics, as the Cadets at West Point are now prepared to give instruction in the art of war. What military operations derive in the field from scientific direction, Agriculture is deriving now from scientific direction in England and Scotland; and so it ought and so it *will do in this country*. The cultivators of the soil, who contribute four-fifths of the national wealth, have a right to demand this *more useful appropriation of their funds*; and what is more, they are going to do it; and the day is coming when no man will be considered a worthy member of an Agricultural Society, or of a legislative body, who does not heartily assist in this glorious work. There is not another class on earth who would not, before now, have been represented in Congress by men who would not dare give one dollar for military surveys and maps and drawings and schools, without exacting as much for *surveys and instruction in Agriculture!* But, thank God! who times all things for the best, the time is coming when justice and honor will be done to the plow as well as the sword. Will not the general press of the country give its aid and comfort to the good cause?

☞ From every part of Ulster the middling and small class of farmers are leaving in hundreds for the purpose of seeking a future home on the other side of the Atlantic. The English and Scotch steamers carry out with them, weekly, immense numbers for Liverpool and Glasgow, the impatience to quit Ireland being so great that should a vessel not be ready to sail immediately from Derry for America, they set out with all possible speed for the above ports. We have been informed that within the last three weeks fully fifteen hundred persons have embarked at Portrush, the steamers on arriving there being scarcely able to take all the passengers offering. [Londonderry (Ireland) Sentinel.

THE GREEN TWIG PEACH.

ROOT AND OTHER GRAFTING.

CLARKSVILLE, Va., March 1, 1847.

Dear Sir: The Green Twig Peach tree is put in care of my worthy friend, J. H. who will deliver it as you have directed. It is my humble opinion a fortune can be made in propagating it, more especially if inoculated like this, permitting the common Red to grow along with the Green Twig. I hope you will take occasion to open the box and see it, for I assure you it is something rare and beautiful. I found the fruit so delicious that it induced me to rear three hundred trees of this kind (now beginning to bear fruit.)

I fear your northern climate may not suit it as well as this, as it appears rather more tender than the red-limb peach. In the same box with the tree, I will put limbs for grafting, if Mr. Colt desires it. Let me tell him how: Dig up the roots of any young peach tree; cut them in lengths of 6 or 7 inches; split the proper end one inch as you cut them off. Take the limbs I send, cut them in shape of a wedge and insert them in these roots, bark to bark; mop around the insertion with a mop dipped in melted beeswax and rosin, not hot enough to injure; plant them 1½ inches below the junction of root and graft, and 19 out of 20 will live. If you have young peach trees, it may be safer to graft to them.

The twigs I send are long enough to cut into several lengths for grafts, and all the ends are dipped in beeswax and rosin, to prevent the escape of sap, and thereby they will be much more certain to live.

I have for a long time been aiming to procure the best selection of fruit in the State for my own use, and take great pleasure in propagating the choicest kinds. My plan is this: When the grafts grow ten or fifteen inches long, I cut off a part and take from it buds and inoculate vines or trees of two or three years' growth. Nothing would please me better than to get a few twigs of the Black Tartarian Cherry; I have seen some notice of it in Browne's work on Trees, and have become anxious to have it. I find that cherries do best when grafted or inoculated on our common wild cherry.

Yours, sincerely, J. L.

JOHN S. SKINNER, Esq.

A MANUAL OF THE PRINCIPLES AND PRACTICE OF ROAD-MAKING, comprising the Location, Construction and Improvement of Roads (Common, McAdam, Paved, Plank and Rail Roads); by W. M. GILLESPIE, A. M., C. E., Professor of Civil Engineering in Union College.

THE work of which we have here given the title, has made its appearance very opportunely, as it was much needed for the very reasons given in the Preface:

"*The common roads of the United States are inferior to those of any other civilized country.* Their faults are those of direction, of slopes, of shape, of surface, and generally of deficiency in all the attributes of good roads. Some of these defects are indeed the unavoidable results of the scantiness of capital and of labor in a new country, but most of them arise from an ignorance either of the true principles of road-making, or of the advantages of putting these principles into practice. They may therefore be removed by a more general diffusion of scientific instruction upon this subject, and to assist in bringing about this consummation is the object of the present volume. In it the author has endeavored to combine, in a systematic and symmetrical form, the results of an engineering experience in all parts of the United States, and of an examination of the great roads of Europe, with a careful digestion of all accessible authorities, an important portion of the matter having never before appeared in English."

We gave an extract from it in our last number, and have only now to reïterate what we have so often urged, that these are the subjects which ought to be taught in our common schools as practical exemplifications of the mathematics which in some of them are taught, or pretended to be. How obviously does a thorough reform in the course of Common School education lie at the bottom of all rational ideas of the improvement and prosperity of the agricultural class!

"LIST OF PREMIUMS FOR 1847,"

OFFERED BY THE NEW-YORK STATE AGRICULTURAL SOCIETY—OBSERVATIONS THEREON.

We should be well pleased if we could give this list entire; but as it would occupy many pages, it would hardly be fair toward subscribers in other States, in which this journal circulates as much as in this, seeing that they can have no interest in the mere details—as, for instance, thirty or more premiums for "*Vegetables*," and yet more for "*Field Crops*." Besides, these particulars are disseminated far and wide by the Society, through the agency of public journals and otherwise. But, for the information and, as far as found suitable, the government of other Societies, and for the satisfaction of general readers, we shall extract from the bill before us, with which we have been kindly furnished by the able Secretary, Mr. Johnson, such parts as may appear to be of most general interest, and as may serve an useful general purpose, in the way we have abovementioned—and, first, as to

Management of Farms.—It will be seen that the questions propounded, connected with these premiums, presuppose, and require, that the farmer who competes for them must be something more than a *mere man of routine!* To answer these interrogatories he must possess habits of thought and investigation. He must keep a register of farm operations, and an account of farm expenses. When farmers are generally prepared to answer such interrogatories, Agriculture may be considered already well advanced on the high road to successful practice as an intellectual calling. *So mote it be!*

We may not, in one number, spare the space which would be required for all the extracts we propose to make, nor will the object in view be in any measure impaired by deferring a portion, if that should be found unavoidable.

The exhibition, it will have been observed, is to be held at *Saratoga Springs* on the 14th, 15th and 16th September, and it would be well if one could be held there every year, in the midst of the season, when visitors from a distance would buy largely of choice things.

MANAGEMENT OF FARMS.

For the best cultivated farm of not less than 50 acres, exclusive of wood-land and waste-land, regard being had to the quantity and quality of produce, the manner and expense of cultivation and the actual profits:

First Premium	$50
Second Premium	30
Third Premium	20

The persons making application for these premiums must submit written answers to the following questions To all who furnish full answers to these questions, premiums will be given consisting of single volumes of the Transactions of the State Society, or sets of those volumes, according to the value of such reports:

SOILS, &C.

1. Of how much land does your farm consist? and of how much wood, waste and improved land respectively?

2. What is the nature of your soil and subsoil? Is there limestone in it? What rocks are found in it?

3. What do you consider the best mode of improving the different kinds of soil on your farm? Of clay soil if you have it—of sandy soil—and of gravelly soil? Answer separately.

4. What depth do you plow? What effect has deep plowing had on various soils?

5. Have you made any experiments to test the difference in a succeeding crop, between shallow, common, or deep plowing?

6. Have you used the subsoil-plow? and what have been its effects on different soils and crops?

MANURES.

7. How many loads of manure (30 bushels per load) do you usually apply per acre? How do you manage your manure? Is it kept under cover? or are there cellars under your barns or stables, for receiving it?

8. What are your means, and what your manner of making and collecting manure?

9. How many loads of manure do you manufacture annually? How many do you apply?

10. How is your manure applied—whether in its long or green state, or in compost? For what crops, or under what circumstances, do you prefer using it, either in a fresh or rotten state?

11. Could you not cheaply essentially increase your supply of manure by a little extra labor?

12. Have you used lime, plaster, guano, salt, or any substance not in common use as manure? In what manner were they used, and with what results?

TILLAGE CROPS.

13. How many acres of land do you till? and with what crops are they occupied, and how much for each crop?

14. What is the amount of seed planted or sown for each crop—the time of sowing—the mode of cultivating, and of harvesting—and the product per acre?

15. What kind and quantity of manure do you prefer for each, and at what times, and in what manner do you apply it?

16. How deep do you have manure covered in the earth, for different crops and different soils?

17. Have your potatoes been affected with any peculiar defect or disease, and have you been able to discover any clearly proved cause for it, or found any remedy?

GRASS LANDS, &C.

18. What kind of grasses do you use? How much seed of clover, or the various kinds of grass, do you sow to the acre? At what season of the year do you sow—and what is the manner of seeding?

19. How many acres do you mow for hay, and what is the average product? At what stage do you cut grass, and what is your mode of making hay?

20. Is any of your mowing land unsuitable for the plow, and what is your mode of managing such land?

21. Have you practiced irrigating or watering meadows or other lands, and with what effect? What is your particular mode of irrigation, and how is it performed?

22. Have you reclaimed any low, bog or peat lands? What was the mode pursued, the crops raised, and what the success?

DOMESTIC ANIMALS.

23. How many oxen, cows, young cattle, and horses do you keep, and of what breeds are they?

24. Have you made any experiments to show the relative value of different breeds of cattle or other animals for particular purposes, and with what results?

25. What do you consider the best and cheapest manner of wintering your cattle—as to feed, watering and shelter?

26. How much butter and cheese do you make annually—from what number of cows, and what is your mode of manufacture?

27. How many sheep do you keep? Of what breed or breeds are they? How much do they yield per fleece, and what price does the wool bring? How many of your sheep usually produce lambs, and what number of lambs are annually reared? How much will your sheep or lambs sell for per head to the butcher?

28. What do you consider the best and cheapest manner of wintering your sheep as to food, watering and shelter? How many in proportion to your flock (if any) do you lose during the winter?

29. How many swine do you keep? Of what breed are they? How do you feed them? At what age do you kill them, and what do they weigh when dressed?

30. What experiments have you made to show the relative value of potatoes, turnips, and other root crops, compared with Indian corn, or other grain, for feeding animals, either for fattening or for milk?

FRUIT.

31. What is the number of your apple trees? Are they of natural or grafted fruit? and chiefly of what varieties?

32. What number and kind of fruit trees, exclusive of apples, have you? and what are among the best of each kind?

33. What insects have attacked your trees, and what method do you use to prevent their attacks?

34. What is your general management of fruit trees?

35. What other experiments or farm operations have produced interesting or valuable results?

FENCES, BUILDINGS, &C.

36. What is the number, size and general mode of construction of your farm buildings, and their uses?

37 What kinds of fences do you construct? What is the amount and length of each kind? And their cost and condition?

38. To what extent are your various farming operations guided by accurate weighing and measuring? And to what degree of minuteness are they registered by daily accounts?

39. Do you keep regular farm accounts? Can you state the annual expense in improving your farm, and the income from it, with such precision that you can at the end of the year strike an accurate balance of the debt and credit? Would not this practice conduce very much to close observation, careful farming, and in the end, much improve our system, as well as better our fortune?*

It is expected that these questions will be answered with precision and minuteness, the applicant submitting the information according to his best knowledge and belief, of the correctness of which an affidavit shall be made.

The statements must be sent, free of postage, to B. P. JOHNSON, Secretary, Agricultural Rooms, Albany, on or before the *first of December*, 1847.

EXPERIMENTS AND ESSAYS.

STALL FEEDING CATTLE.—Best experiment in stall feeding cattle or sheep. A full and detailed statement will be required. 1st. Weight and age of animal when feeding commences. The weight weekly during the process. 2d. The kind and exact quantity of feed and its value. 3d. The weight when slaughtered, and the price at which sold, and the account of profit or loss. 4th. Any other particulars that may be important to a full and complete account of the whole process.....$20

DRAINING.—Best experiment in draining. 1st. Statement of the situation of the land previous to the commencement of process—the kind and condition of soil. 2d. The method pursued, with a particular account of the expense. 3d. The result and increased value of the land, if any.....$10

TOP DRESSING GRASS LAND.—Best experiment. 1st. Situation of land and of soil. 2d. The kind, quantity and value of manure used. The manner of its application. 3d. The results—giving the increased product, &c. To be answered in 1848..$20

ROOT CROPS.—Best experiment on not less than half an acre. 1st. State of land previous to crop, and how manured. 2d. The kind, quality and value of manure applied, and in what manner. 3d. The kind of soil, and the manner of cultivation, with a detail of the expense. 4th. The result.....$10

Experiments in Fattening Animals on Indian Corn, to test its value for that purpose.

ON PIGS.

1. Lot of 10 pigs of about 100 lbs. weight each, in lots of 5; to be shut up between 20th November and 20th December, and weighed separately when put in—the weight to be registered, as well as the sex, breed and general characteristics of the pigs, and arrange them in the pen by sex, age and size; to be fed on Indian corn alone.

2. Weigh a quantity of Indian meal, and feed it at regular hours—to be cooked and fed two weeks, and the corn dry two weeks, alternating the feed every two weeks.

3. Have the pigs kept clean.

4. At the end of two weeks weigh each pig, and enter its weight, and make an account, to be entered, of how much all have gained, and upon how much feed.

* This question will be a poser to some who are esteemed among the best farmers in this State.

[*Ed. Farm. Lib.*

5. At the end of each succeeding two weeks perform the same process, and continue to do so for at least 12 weeks, and sum up the entire gain, quantity and value of the feed, the market value of the pork, and where marketed, at the time each of the pigs is slaughtered and disposed of.

A premium of.....$25

For experiments in fattening the like number of pigs, under the same regulations as above, *on any other kind of grain or vegetables*.....$25

The statements required, and everything connected with the experiment in each case, to be verified by the affidavit of the owner and at least one other person.

FARM DWELLINGS, &C.

For the best design, accompanied with plans, elevation and cost of construction, combining convenience, economy and good taste.....$20

For the best design, accompanied with plans and cost of construction, of a piggery.....$10

For the best design of a farm barn with plans and cost of construction, and out-buildings $15

Competitors for the above premiums must forward their manuscripts to the Secretary previous to 1st of December, 1847. Free of postage.

The above premiums for experiments and essays will be open to citizens of other States, as well as residents of this State.

PREMIUMS ON CHEESE DAIRIES FOR 1847.

The number of cows not less than 20. B. P. JOHNSON, Chairman of Committee.

Special .....$50 | Second premium..$30
First premium .... 50 | Third premium ... 20

The persons making application for premiums, must submit written answers to the following questions:

1. What is the locality of your farm, its elevation, and latitude?
2. How much land under cultivation? How much in pasture and in meadow?
3. What is the nature of your soil and subsoil?
4. What plants or grasses do you use for pastures? What for hay, and how are your meadow lands treated, and how much hay do they yield per acre?
5. How many pounds of milk from each cow? How many from the whole herd?
6. How many pounds of cheese to 100 lbs. of milk? The quantity of milk and cheese during the season? The quantity of milk and cheese to each cow?
7. At what time do you commence and close making cheese?
8. Do you rear the calves? Do you keep swine?
9. Is any food used besides grass and hay?
10. *A particular account* of the method of making cheese. The quantity of the cheese, and its price in market, and place where sold?
11. The number of cows milked? The breed of the cows and their age?
12. What difference is there in the quantity of cheese yielded by the same quantity of milk given by different cows?
13. Has any particular kind of herbage been noticed to have an influence in increasing the proportion of *cheesy matter* in a given quantity of milk? And what kind of herbage produces the most and best milk?
14. If any butter made during the season? State how much.
15. What are the principal causes which produce bad cheese?
16. State such other particulars as from experience and observation are deemed important, so that correct results may be obtained as to the best manner of managing a dairy.

It is expected that the questions will be answered with precision, and that all the operations of the dairy to be carefully noted during the season. The object of the Society is, to ascertain as far as practicable all that relates to the manufacture of cheese, the quantity of milk and cheese per cow, and the quantity of cheese from each 100 lbs. of milk, and the kinds of plants and grasses best adapted to producing milk for cheese; the best breed of cows, and the location of farms best adapted to the manufacture of cheese.

The statements presented must be verified by the affidavits of the competitors, and also by one or more persons who assisted in the dairy and is acquainted with the operations.

ON BUTTER DAIRIES.

The number of cows not less than 20. Hon. R. DENNISTON, Chairman of Committee.

First premium $30
Second premium 20
Third premium 10

Persons making applications for premiums on *butter dairies*, must in all respects comply with the regulations required for cheese dairies, adapting their answers to butter instead of cheese.

☞ Statements as to cheese and butter must be forwarded to B. P. JOHNSON, Secretary, Agricultural Rooms, Albany, on or before the 1st of December, 1847.

BUTTER.

For the best lot (quality as well as quantity considered) made from 5 cows in 30 successive days—25 lbs. of the butter to be exhibited $25
Second best .....$15 | Third best $10

Compliance with the following rules will be strictly required of those who compete for these premiums, viz.: The cows to be fed on pasture, green corn-stalk fodder, or grass cut for the purpose, only. No grain, roots, or slops of any description, to be fed during the trial. The cows to be owned by the competiters, previous to the 1st day of February, 1847. The milk drawn from the cows on some one day during the trial to be accurately weighed and measured, and the result stated. A sample of at least 25 lbs. of the butter so made to be exhibited at the Fair at Saratoga, for the inspection of the Examining Committee. The particular breed of the cows to be stated, if known, and the method of making and preserving the butter. A certificate signed by the owners of the cows, and at least one other person who assisted in milking and making the butter, detailing the above particulars, will be required.

The Executive Committee believe that few if any premiums offered on neat cattle will result in greater benefit to the farming interest than those on the products of the dairy, providing fixed rules requiring uniformity of feed, be faithfully enforced. Let the regulations be observed, and an opinion approximating to accuracy may be formed by the public which of the several breeds of cows are the best for dairy purposes; and from those that prove the best farther improvements may be made.

Best 25 lbs. made in June.....$10
Second best .....Col. Tour
Third best..... Vol. Trans.
Best 50 lbs. made at any time.....$15
Second best 10
Third best.....Col. Tour.
Fourth best.....Silver Medal.
Fifth best.....Vol. Trans.

The claimants for premiums must state in writing the time when it was made; the number of cows kept on the farm; the mode of keeping; the treatment of the cream and milk before churning, winter and summer; the method of freeing the butter from the milk; the

quantity and kind of salt used; whether saltpetre or any other substances have been employed.

The butter offered for premiums must be presented in butter tubs, jars or firkins.

CHEESE.

One year old and over.

Best 100 lbs.....$15	Third best...Silv. Medal
Second best.... 10	Fourth best..Wash. Let.
Fifth best.....Vol. Transactions.	

Less than one year old.

Best 100 lbs.....$15	Third best...Silv. Medal
Second best.... 10	Fourth best..Wash. Let.
Fifth best.....Vol. Transactions.	

Those who present cheese for the premiums offered, must state in writing the time when it was made; the number of cows kept; whether the cheese was made from one, two or more milkings; whether any addition is made of cream; the quantity of rennet used, and the mode of preparing it; the mode of pressure, and the treatment of cheese afterward.

SILK.

Best specimen manufactured (woven into cloth or ribbons) $15	Best specimen of sewing silk, not less than 1 lb. of domestic growth...$10
Second best..... 10	Second best..... 5
Third best....Col. Tour	Third best....Col. Tour
Fourth best..Vol. Trans.	Fourth best..Vol. Trans.
Best specimen not less than 1 lb. reeled silk, $5	Best one-half bushel coconns, 1847 .....$8
Second best...Col. Tour	Second best ..Col. Tour.
Third best... Vol. Trans.	Third best ...Vol Trans.

It must be gratifying to every one who perceives the advantages of diversified pursuits and products, to find this Society persevering in its offers of premiums for American *silk*. This should undoubtedly be one of our domestic products, and would have been before now, if it had interested any other class of people half as much as it does the agricultural class. Of all people they have the least influence in halls of Legislation, not being qualified to compete where success too often depends on intrigue and log-rolling.

POTATOES.

For the best and greatest variety of seedling potatoes of approved varieties $10

QUINCES.

Best 12 quinces of any variety, $3, and Down. cm. ed.
Second best .....$1, and Thomas's Fr. Cult.
Third best.....Thomas's Fr. Cult.

CRANBERRIES.

Best peck of domestic culture.....$5
Second best..... 2

To be accompanied with a full description of the manner of cultivation, nature of soil, &c.

Any premiums may be withheld in the discretion of the Committee, if the samples exhibited are not worthy of a premium.

The fruit exhibited and for which premiums are awarded to be at the disposal of the Committee.

Six volumes of Downing, common edition, and twelve of Thomas's Fruit Cult. will be awarded by the Committee, in their discretion, for choice fruits not enumerated.

WINTER MEETING.

For the best new seedling variety of winter apples, of decidedly superior quality and valuable for exportation—one dozen specimens to be exhibited—together with a history of its origin; a description of the growth, character and habits of the tree, and the growing of the fruit—such fruit to be adjudged by the Committee as of the first character for orchard purposes..... Downing's book, colored plates. For the second best do..$5, and Downing, com. ed.

The above new seedling variety to be sent to B. P. JOHNSON, Secretary, Agricultural Rooms, Albany, before the 15th January, 1848, for examination.

For the best new fall seedling apple for all purposes, conditions and descriptions as above, $5, and Downing, common edition.

Second best do. $2, and Downing.

These last named to be exhibited at the Annual Fair and show of the Society in 1848.

To indicate respectfully, and, he hopes, not presumptuously, his individual opinion of the particular utility of offering premiums for *seedlings*, the Editor of The Farmers' Library will ask to have added on his own account—for the best seeding potatoes as above, the last previous volume of the Cultivator; for a copy of the communication accompanying the premium which may be awarded for cranberries, the last volume of the Quarterly Journal of Agriculture; for best new seedling winter apple, the American Agriculturist; best seedling peaches, the Farmers' and Mechanics' Magazine; and for the best new fall seedling apple, the Genesee Farmer—all to be well bound, and to follow the award of the Society in each case. We select these as journals published in this State, devoted to the same cause that we are, and to show, as far as we know how, our good will toward all; for we are but so many bees working in harmonious zeal for the same hive. Such, at least, is our feeling.

DISCRETIONARY PREMIUMS—Will be awarded for articles of merit exhibited by *Mechanics*, in all the various branches, and it is hoped that a general exhibition will be made.

Plate will be substituted for money premiums in all cases, at the option of competitor.

And why not offer *agricultural and horticultural journals as premiums also?* Does not the interest of this great pursuit of the State and of the Union demand that such works, conducted with great labor and expense, should have, on every

occasion that it can be given, the countenance instead of the ban of associations, gotten up under the influence, be it said, of those very journals, and patronized by the State, expressly for the promotion of the very industry to which they are devoted? For all that is done by the Society of the State, the public would not know that there are men and journals within its limits that have been giving all their time and influence for the cause of Agriculture before these Societies came (under their influence) into existence. It is seen that *there are some works distributed by the Society*, and we doubt not selected with the best intentions; but would not the periodicals we have named above, as premiums, be also quite as useful in the whole cyclopedia of agricultural knowledge which they embrace, as any single work confined to a particular branch or subject—meritorious and valuable as these works doubtless are? What have Agricultural Societies in other States a right to infer, when they see the great State Society of New-York carefully excepting to and excluding all agricultural journals from their patronage? Everybody knows the vast influence of the press, and the incalculable advantages to all human pursuits, of having cast upon them, by the Press, all the lights that science and experience are constantly bringing forth; and who can wonder at the comparative advance and prosperity of all other pursuits, on which so many papers are shedding their light and knowledge, while *so few* are dedicated to the *cause of Agriculture!* Is it not, then, inexplicable that where a State Society, organized for the express purpose of concentrating and diffusing a knowledge of all useful facts and discoveries in Agriculture, and while it is, in fact, in other ways and forms, exerting itself to that end—using its funds in the distribution of books published on speculation—should yet interdict all patronage to journals got up and conducted at great cost, expressly to collect and publish periodically, exactly and exclusively, the very matter which is supposed to be most precisely adapted to the very ends for which the Society itself was instituted?—interdicted at least so far as that may be implied by passing them by and refusing them its countenance? Let it not be supposed that we are seeking to propitiate support for this journal. If, having liberal publishers at our back, and unrestricted command of whatever can throw light on American husbandry, and thirty years of constant devotion of time and pen, we cannot put forth a work that shall *deserve* the patronage of the friends of Agriculture, and particularly of Associations with funds to promote it, we shall never complain of its being withheld. What we have a right to ask is, that we may escape all hostility, as we sincerely and honestly endeavor not to give cause for it, in *any quarter*. We take pride in the consciousness that we aim at something higher than the little money that might be made by success at the expense of our colleagues in the good cause.

In this great "Empire State" the produce of Agriculture is valued at $108,000,000, while that of her manufactures, commerce, mining, forests and fisheries, united, do not equal that sum. For the benefit of the landed interest, with an aggregate population in the State of near three millions, there are not more than some half dozen agricultural journals published at the cheapest rate, while for other pursuits, all combined less numerous and productive, there are not less than *two hundred papers published;* and yet the State Agricultural Society deems it inexpedient to give one dollar of the funds at its command for the distribution of any agricultural knowledge which may happen to take the form of a *periodical* the especial province of which is to watch for and proclaim all valuable discoveries in agricultural philosophy, machinery and practice!

Let any man for a moment run his eye over the Index of one of these journals (which we offer as premiums) for a single year, and say which is likely to conduce most to the true welfare and dignity—ay, and if it must be so, to the *strong box*—of any family—one of these volumes or a *one or a two dollar note!* Contrast for a moment the character and promise of the young farmer who would prefer and exert himself to get the *book* with the motives and impulses of him who would give preference to the *money*. In regard to which of these two would one augur the best? Which would a young FRANKLIN go for—the *knowledge* or the *dross?*

True, it may be said that he who gets the money may buy the book *if he chooses*. But would it not have a good effect for a great State Society to presume a preference for knowledge over all things, and even to *push it in the way* of those who need it, as the wisest of us do?

After all, we are far from meaning to undervalue the labors and the patriotic aims of this Society. On the contrary, we sincerely and disinterestedly honor its zeal, its industry, and, if we may without presumption add, its enlightened views. Profound care to do the best is obvious, as is also decided improvement in their regulations. We hope they will go on from year to year aiming rather at the public good than at popular applause; that they will endeavor more and more to encourage and reward the pursuit and the display of knowledge, rather than success in things that have become "stale as a tale thrice told," and that derive their excellence from the corn-house or the swill-tub, rather than the skill and intellectual ambition of the successful candidate. We trust that their care to secure impartial decisions may be consummated by just awards, and to that end that they may effectually stigmatize and put down all juggling and management, and all indecent importunity of the judges—all collusions and combinations in the distribution of the offices of the Society, the bounty of the State, and the contributions of individuals. For it is only by such a high-minded course of management that any such association can escape from falling finally into contempt, disfavor and dissolution.

CREAM-CHEESE—HOW TO MAKE IT.

WE have often inquired how it is that only in the Philadelphia market do we meet with this agreeable variety of Cheese. Even there, formerly, in good old times, when there was but *one* place—"*Jo Head's*"—where the traveler was sure to meet none but gentlemen—Cream-Cheese manufacture was the monopoly of one old lady, who sold it low down the market on Wednesday mornings. Now it is there getting to be quite common in more senses than one.

The following recipe for making it is to be found in Delgairn's Practice of Cookery, p. 467. We do not know whether the proportion of cream may not be too small; but that may be increased at discretion:

"One pint of cream being mixed with twelve pints of noonday milk, warm from the cow, a little rennet is added; and when the curd is come the whey is poured out gently, so as to break the curd as little as possible. It is then laid on a cloth and put into a small sieve; the cloth is changed every hour during the day, and in twenty-four hours it will be fit for use. It may be served on a breakfast-plate, with vine-leaves under it, and will keep perfectly good only a few days."

The price in Philadelphia for these Cheeses is 25 cents each; the size about that of the bottom of a dinner-plate, and about an inch or a little more thick.

URINE.—One hundred parts of the urine of a healthy man are equal to 1,300 parts of the fresh dung of a horse, and to 600 parts of the fresh dung of a cow.

THE GENUINE ARABIAN HORSE.

"Oh, give me back my Arab steed."

THERE are romantic associations with the very mention of the Arabian horse, in the mind of every lover of that noble animal. No animal has been described by writers with a freer play of the imagination. We recollect to have heard the celebrated Captain Riley portraying the figure and powers of one he saw in Arabia. In passing, he said, through a thicket, where the road was winding, the noble animal disdained to pursue its tedious serpentine course, but instead of instead of that, took a straight direction and *trotted over bushes* four feet high without touching them.

An interesting article might be made by a recital of the remarkable accounts of their action and endurance, some of them doubtless true as well as extraordinary.

One of the most particular and authoritative descriptions is probably the following from the Memoirs of Sir James Campbell:

The route of the caravan lay at first through the Great Desert of Syria, and then through the country of Hamah, the most celebrated in the world for its breed of horses; and this was a circumstance peculiarly agreeable to me, as I was desirous of all things to carry home with me a horse of that unequaled race. The purity of the breed is ascertained and preserved in this country with greater precision and facility, in consequence of the horses and mares, to the number of one hundred and upward, being uniformly held in common property, by a particular family or tribe. The line of succession is preserved with all the care and and all the accuracy perhaps of a Welsh pedigree: and in the genealogical tree of the horse which I ultimately purchased, its descent was professedly traced to the famous black mare of Mahomed, and I had a certificate of the fact, subscribed by five or six sheiks, who have an obvious interest in keeping up the value of their breed of horses by this exactness in their pedigree.

It is on the mares, however, that the chief value is placed, and through them it is that purity of blood is most depended on. The sister of the horse which I brought home with me, was for sale at the time I made the purchase. I examined her with the greatest care, and could not detect a semblance of a fault in any one of her points. Like all the others of the race, she was under fifteen hands high; and the price put upon her by the tribe to which she belonged was 10,000 piasters, equal to £2,500 of our money. The value of the mare is always much greater than that of a horse of equal symmetry, from the idea of her greater influence in preserving the purity of the race. The price I paid for the horse, own brother to this mare, was 800 Venitian sequins, equal to about £400 sterling; and I am inclined to think it was not far out of proportion, according to their ideas, to the price of the other.

While I was yet in the district where these horses are bred, an agent arrived from the King of Prussia, commissioned to make purchases for His Majesty. He agreed with me in admiring the mare, and declared she was the handsomest animal he had ever seen. He was even willing to give the 10,000 piastres for her, but the tribe had come to the resolution of preserving her as a brood mare, and refused that sum when offered. It is to be observed, however, that there are two distinct races in the country, the noble and the common. Among the latter, many beautiful horses are often to be found, but they never possess those qualities in perfection for which the noble race of Arabia is so peculiarly distinguished—fleetness, wind, and bottom.

Here, too, I must observe that the horses brought from Barbary are not to be compared in any good quality with the noble breed of Hamah. Many of the Barbs have radical faults, and some of them are very ugly, goose-rumped, cat-hammed, and narrow-chested. The difference of the breeds was long unknown in this country, but now it is better understood, and a Barb I believe is seldom bred from.

I shall here mention a circumstance on the authority of persons in that country whose good faith and respectability I had no reason to doubt, as illustrating in rather a striking point of view the marked distinction between the different races of this noble animal, which are reared in the same district.

An Arab who had pitched his tent in a solitary spot of the desert, had occasion to

leave his family, with his stock of the common breed of horses and mares, for a single night. On his return to the place in the morning, he found that his family and his whole property had been carried off in the night. He was mounted on a horse of the noble breed, and of the highest qualities, and having a rifle with him, he set out alone in pursuit of the robbers. On coming up with them he found that their numbers were considerable, but he had reason to believe that they were not possessed of fire-arms, which proved to be the fact.

Approaching near enough to bring them within range of his gun, he fired and wounded one or more of them, and waving his hand he dared them to follow him. This they attempted, but found it fruitless. He then returned to the attack, and again succeeded in singling out one or two of them with his rifle. Once more they pursued him with the fleetest of their horses, but to overtake him was impossible. Thus he hung upon their rear, wounding and killing several of them, until he at length compelled them to restore the booty.

The accoutrements of the Arab horsemen are simple in their construction, and well suited to his wants. The saddle is generally large, and always easy to ride on. The straps are made of untanned leather, and are fastened without buckles. A ring is attached to the end of the girth, and another to a corresponding part of the saddle. Through these rings a strap is repeatedly passed, and drawn together with such force as to bring them near to each other, after which, the strap is fastened by twisting the ends round the part thus tightened. The saddle thus fixed is never displaced, and, indeed, seldom taken off, except for the temporary purpose of grooming, when it is again immediately replaced, although there be no intention of riding. Cruppers are seldom used, because they are not necessary to keep the saddle in its place, and because they never carry anything behind it. The shoes are a thin flat piece of iron, with a hole in the middle to keep the foot cool, something in the form of our common bar shoe, but extremely light, and even flexible, so as to yield with the foot when pressed upon a stone. The numerous diseases to which our horses are liable are scarcely known in these countries.

Sometimes, indeed, I have seen a lame horse, but upon inquiry, the cause was generally to be traced to some accident, either in a skirmish, or from riding violently, which they do without hesitation over the roughest ground. Although never a very timorous rider, I have frequently felt somewhat uneasy at the style in which they carried me over a country which the boldest rider in England would hesitate to follow. In going down a declivity not less, perhaps, than forty-five degrees, where stones as large as a table were scattered about in all directions, I was proceeding with some caution to guide my horse over the difficulties of the ground, when an Arab called out to me, and I was induced ever afterward to follow the advice, "Give him his head, he sees the stones as well as you do."

Everybody has seen the Turkish bridle; they never use a curb, but the ring which is put into the mouth serves the same purpose; the bit, which is very light, acting so powerfully, by means of the lever attached to it, as to force the mouth open and keep it so: neither do they ever use the snaffe, or bridoon; I tried it in the hope of its easing the mouth, but to horse and rider it proved equally inconvenient. Although they use such powerful bridles, the Arabs ride with a heavy hand, so as to sustain the horse in advancing, and to curb him in action. This they are able to do very effectually, and in throwing the jereed it is absolutely necessary. Perhaps the most remarkable point about the Arabian horse is the extraordinary smallness of the head and mouth—so small, indeed is the latter that you would think they might use a common tumbler for a water-bucket.

The stirrup used by the Arab is singularly short, but the seat of the rider is not on that account the less secure, and it enables him, in rising on his stirrup to throw the jereed, or to strike a blow, to do it with an infinitely increased effect. The sudden jerk which is often given in these exercises to the stirrup-leather, makes it necessary to secure it much more firmly than we do. This is done by ten or twelve straps or thongs, and the stirrup, in place of being a narrow bar, is so constructed as to allow the whole foot to rest on a plate of iron reaching from the toe to some distance behind the heel, where it is sharpened so as to serve the purposes of a spur.

The Arab feels that his safety depends on the quality of his accoutrements, and this is a point to which his attention is constantly directed. In action they never dismount, so that when you see a horse during an engagement without a rider, you may conclude that he is killed or badly wounded. In the hands of a European unaccustomed to the habits of the Arab horse, unacquainted with the manner of treating him, the animal appears to be extremely vicious, but let the same horse be mounted by a native horseman, and he will be found to be gentle, docile, and obedient.

I need say nothing of the sabre, which is their favorite weapon, and is always light and handy, of a curved form, and of considerable strength, the best being made at Damascus. But the use of the jereed is not so much known: its length is about four feet, with a steel head, well-tempered and well sharpened. It is used as a missile, and four of them are generally carried in a small case under the thigh of the horseman, so as to enable him to seize one of them very quickly, and the case is fastened to the saddle by loops behind and before.

AGRICULTURAL EDUCATION IN VIRGINIA

THE following correspondence is published to show the feeling which is beginning to pervade the whole country on the subject of a better and more *appropriate* education for all who are to follow the cultivation of the soil for a livelihood: and assuredly when we refer to the numbers employed in it, and the value of the products of agricultural industry, so much exceeding all other occupations combined, there can be no hesitation in admitting the right of the landed interest to its proportionate share of the public means for giving knowledge and efficacy to that most important pursuit.

JOHN S. SKINNER, Esq.: WINCHESTER, May 5, 1847.

Sir: The undersigned have heard with pleasure that you have some idea of traveling through the Valley of Virginia during the approaching summer. Under this expectation they have been appointed by the Winchester Lyceum a Committee respectfully to solicit, while you are performing this tour, that you will spend a few days in Winchester, and deliver such lectures as you may deem best calculated to advance the great agricultural objects to which you have devoted so much of your time and mind.

The undersigned are of the opinion that no portion of Virginia, at least, presents a finer field for testing the usefulness of agricultural schools, either for the Normal or general purposes of education, than this neighborhood; and they feel satisfied that you are disposed to lend the weight of your name and great experience in giving an impulse to such undertakings, as well as to any measures calculated to develop the great farming resources of our Valley.

The undersigned take pleasure in advising you that the Winchester and Potomac Railroad Company tenders to you, on the occasion referred to, the privilege of traveling over their road without charge; and we assure you that no expense need be incurred by you during your visit here, nor your journey up the Valley, from which all our citizens must anticipate profit as well as pleasure.

It is likely that toward the end of June or the first week of July might suit your arrangements as the best time to be with us, as it certainly would be the most convenient to our farmers, whose harvests, at a later period, might forbid them the pleasure of making your acquaintance and listening to your views of the dignity and importance of a pursuit which mainly engages the capital and enterprise of the Valley.

We are, respectfully, yours, &c.

JOHN BRUCE, D. W. BARTON,
W. Y. ROOKER, ROBT. Y. CONRAD,
E. T. SMITH.

ANSWER.

Gentlemen: I have duly received your flattering invitation on behalf of the Lyceum, to spend a few days in Winchester *en route* through the valley of Virginia. Without feeling that I can yet positively engage to do so, I must beg you to make my grateful acknowledgments to those whom you represent. Twenty-eight years ago, then in infirm health, I traveled through that region on horseback, noting for publication in the American Farmer, what seemed most worthy of regard, in conection with its Agriculture; and now, after the lapse of so many years, it could not fail to be both interesting and instructive to survey it in the same connection; comparing its condition at that and at this time, and making such reflections on its advancement or decline as inquiry and observation might suggest.

I shall never forget the agreeable impression then made by the view of the beautiful farming country between Harper's Ferry and Winchester, including a detour through Charleston. Bearing in mind what has been done in other countries, I have no hesitation in saying that by a reasonably abundant and skillful application of capital and labor, the whole valley of Shenandoah ought, at this day, to be averaging forty bushels of wheat to the acre; for if we have in our country a district of land peculiarly adapted to the growth of the two great sta-

ples of the Union, Wheat and Indian corn, assuredly yours is that district. The same may be said of Frederick and Washington Counties in Maryland.

Permit me gentlemen, to quote you a single passage from the last number of "Personal Observations" by Rev. Mr. Colman, on European Agriculture.

"On the estate of the late Mr. Coke. afterward Lord Leicester—where, when he came to reside on his property, it was thought, on account of the *thinness and poverty of the soil, wheat would not grow*—the average yield is from forty to forty-eight bushels per acre; and I have already referred to a large farm where the crop on the whole farm, in 1844-5—a most favorable season—averaged fifty-six bushels per acre. These are most encouraging results; but since, beyond all question, in an instance referred to, eighty bushels have been produced, who will say that the limits of improvement have generally been approached? All this too has been, without doubt, the effect of *improved cultivation.*"

And let me refer you also to the progress of agricultural improvement in Mid-Lothian, Scotland, as you will find it described in the next (July) Number of the Farmers' Library. When I add that all writers agree that these great improvements, and average increase of fertility have resulted in these old countries and are still progressing from the application to practical Agriculture of the sciences with which God and Nature have allied and dignified it, I shall have adduced enough to justify your honorable solicitude for the establishment in our country, of institutions which shall secure for it here the same results.

Were it practicable, as I hope it is, to *prevail with the general Press to urge the rights* of the landed interest in this respect, it would not be long before its Representatives would be made to recognize its claim to paramount influence in the *legislation of the country.* Compare, for one moment, the agricultural concerns of Virginia with *all other* branches of industry combined:

Employed in her Agriculture	318,771
In all other pursuits in the State—commerce, manufactures, mining, navigation, internal and external, and the learned professions	74,903
Excess of agriculturists	243,768
or more than four to one.	
Then look at the produce of her agricultural industry, *put down at only*	$59,685,821
All other branches of industry united	17,085,821

Since the last war with England there has been paid in like proportions, by the agriculturists of the country, little if anything short of 500,000,000 dollars for military operations, surveys, schools and machinery! But what has been done for instruction in Agriculture? Yet is it not as improvable as the art of war, or any other art or manufacture, if we could have secured to it, too, out of its own contributions to the common treasure, the means of diffusing a better knowledge of the sciences that belong to it, such as the principles of Mechanics, as involved in the structure of agricultural machinery; of Mathematics, as employed in surveying and mapping land; of Civil Engineering, as it teaches the art of road-making and bridge-building and rural architecture; of Geology, to ascertain the nature of soils; of Animal and Vegetable Chemistry, Botany, &c.?

Suppose the other particular classes, (all useful in their way, and to Agriculture itself,) which on all occasions so easily and promptly combine for their own especial welfare, were represented in Congress in the proportion to agriculturists that they are now in proportion to these other classes, as respects both numbers and productiveness; would *they* yield everything and demand nothing, as farmers do? Why, gentlemen, the very *corn-blades* of Virginia, regarded as the mere offal of her agricultural industry, and not even alluded to in the census of national wealth, allowing 20 pounds to the bushel of corn and 20 cents to the hundred weight, would amount to nearly $3,000,000, and actually entitle her to more influence, comparatively, in the appropriation of the public funds than she has ever claimed or exercised in the rivalries to which the various classes have given rise in Congress.

What is needed, let me repeat, is to get the *general Press of the country to entertain and evince the sympathy that is justly due to this great, paramount concern of the country.* What lever so powerful as it in controlling the public sentiment and policy of the nation? Yet see in Virginia more than fifty papers devoted to party politics and other objects, and one only appropriated to the cause of Agriculture, and that one left to linger along between life

and death, though conducted with great earnestness and ability. What can be expected by men who are not true to themselves?

I would with great deference suggest, too, that Associations should be formed in every election district in the State, to demand from Congress the patronage that is due to Agriculture in view of the number that pursue it, and the value of its products. Among the first official acts of Presidents Washington and Jefferson were emphatic recommendations to Congress to "encourage Agriculture." Virginia's share of the proceeds of the public lands would in a few years diffuse over the whole State a knowledge of the principles on which the productiveness of Agriculture depends, that would soon result there, as it has done in England and Scotland, according to the most accurate and competent observers, in nearly doubling the amount of her produce.

Should it be in my power to accept your invitation, you shall have timely notice from, gentlemen, your obliged and grateful friend, J. S. SKINNER.

To Messrs. JOHN BRUCE, W. Y. ROOKER, D. W. BARTON, ROBT. Y. CONRAD, and E. T. SMITH.

GREAT CROPS OF INDIAN CORN FOR THE LAST FORTY YEARS.

WHY OFFER MORE PREMIUMS?

THE interest of Agriculture in no way that it can be viewed any longer requires that premiums should be offered *merely for largest crops of corn!* for, in the results, there is not likely to be anything new or useful. As to mere quantity to the acre, why should Societies throw away their means on an object after the desideratum sought has been obtained? Is there to be no end to the collection of mere facts? Why pile these mountain high? of what use are facts but for the establishment of principles? It was very well, twenty-five years ago, to ascertain, as was done, what *could* be produced by a reasonable and profitable application of labor and manure; but when nothing more that is new or valuable is to be expected, surely reason would suggest the application to something else of the funds applied to this object and all other similar purposes. To show how futile, to say the least, is all farther offer of premiums for particular crops, (since we have long since reached the maximum to be had by all prudent and economical means and processes,) we will give here, once for all, and for the special use of all Premium Committees hereafter, a list of crops of Indian corn that have been made, and that, of course, can be made again; and we would respectfully recommend that no premium be given for a crop less than the largest of these; for let us even suppose that by fifty bushels more of manure and one more genial shower, some lucky fellow should eke out a peck more to the acre, what proof would there be in that of superior skill or merit? What valuable principle would it bring to light whereby the same result might be achieved with more certainty and economy for the future? In reference to this list of crops, which we derive from the Cultivator, vol. x., page 123, it is worthy of remark, that while every Agricultural Society in the Union has since been offering premiums for the heaviest crops on patches of corn, the largest here recorded was produced in this State (New-York) as far back as *twenty-three years ago!* and that the first crop recorded was 132 bushels, in 1819, and the last recorded, 1842, was precisely the same; and, farthermore, it is demonstrated that in the interval there has been *no average increase.* Is not this exhibit enough to satisfy all reasonable curiosity as to what can be done, and all hope of farther use-

ful experiments on that everlasting point? If ever we get leisure we will make out a similar list for other stereotype premiums.

No. of acres.	Product pr acre.	Whole product.	Names and places of cultivators.	Yrs.
1	136	136	R. H. Rose, Silver Lake, Pa.	1820
1	118	118	John Stevens, Hoboken, N. J.	1820
1	172½	172½	J. & M. Pratt, Madison, N. Y.	1822
4	170	680	-- --	1824
1	132	132	Samuel Chidsey, Cayuga, N. Y.	1819
8	112	896	Earl Stimson, Saratoga, N. Y.	1823
5	129	645	Wm. M'Clure, Allegany County, Pa.	1823
5	136	680	Joseph Evans, Washington County, Pa.	1823
1	174	174	B. Bartlett, Eaton, Madison County, N. Y.	1823
1	116	116	T. & H. Little, Newburyport, Mass.	1822
1	115	115	-- --	1823
1	142	142	Mr. Wilmarth, Taunton, Mass.	1825
5	108	540	Charles Bugbee, Palmer, Mass.	1831
1	140	140	Benj. Butler, Chenango, N. Y.	1831
1-136		202	Henry Sprague, Worcester, Mass.	1831
1	103	103	"Old Farmer," Rhode Island	1833
40	140	5600	Asahel Renick, Pickaway County, Ohio	1835
1-12	100	130	S. Lathrop, W. Springfield, Mass.	1835
22		2216	P. Reybold, Newcastle, Delaware	1835
1	108	108	R. H. Sheldon, Cayuga County, N. Y.	1838
1	110	110	E. Humphreys, Caledonia, N. Y.	1837
40		3800	——— Clark County, Ky.	1837
1	150	150	——— Montreal, Canada	1838
1	131	131	R. Lamprey, Moultonborough, N. H.	1839
1	116	116	Mr. Brown, Strafford, N. H.	1839
1	130	130	P. P. Pillsbury, Tuftonborough, N. H.	1839
1	144	144	J. F. Osborn, Cayuga County, N. Y.	1841
1	121	121	J. Sherman, -- --	1841
1	112	112	-- -- --	1841
1	120	120	Mr. Ellsworth, Conn.	1840
1	158	158	G. W. Williams, Bourbon County, Ky.	1840
1	120	120	W. Ingalls, Oswego County, N. Y.	1839
7		1352	J. Myers, Canton, Ohio.	1840
1	154	154	W. Ingalls, Oswego County, N. Y.	1840
2	116	232	B. Bradley, Bloomfield, N. Y.	1841
1	122	122	Samuel Phelps, Cayuga, N. Y.	1842
1	113	113	Wm. Ingell, Oswego, N. Y.	1842
1	132	132	W. Wilcox, Saratoga, N. Y.	1842

The number of such crops, where the product exceeded 100 bushels per acre, might be extended to a great length from the list in our possession, but the above is sufficient.

Instead, then, of wasting $20 of funds not too easily procured, even on him who should happen to make one bushel more by the blessing of Providence and the strength of a long purse, we would give it, and more, for a knowledge of any discoverable but yet unknown facts in reference to the same plant.

SEWAGE COMPOUNDS.—You must not limit your ideas of the compounds which enter into the composition of town sewage to mere excretions, although it is admitted that the fæces and urine of the human subject—containing, as they do, the ashes of all the food that has been consumed—form, perhaps, the most fertilizing manure that it is possible to apply to the land. In addition to these excretions, sewer water contains large portions of the alkalies potash and soda, derived from house-drainage, viz., from the pearlash, soap, and common salt, which are so liberally used for domestic purposes. These alkalies form important elements of the food and structure of plants; from the slaughter-houses, markets, and factories, large contributions are also made. There are also the excretions from animals employed in towns, which directly or indirectly find their way into the sewers. Soot, too, which is rich in ammonia and sulphuric acid, is brought down by every shower of rain in large quantities, and poured direct into the sewers. Then there are the debris of the roads, pulverized by constant traffic, and which furnish an abundant supply of alumina, silica, and iron, (necessary ingredients in the food for plants,) which, along with the soot, is washed direct into the sewers. The sewage compounds are abundantly supplied with the elements of the food for plants.

☞ The keeper of the serpents and other reptiles at the Garden of Plants, Paris, has just brought to perfection an apparatus of great simplicity, for the artificial hatching of eggs. All that is required for the purpose is to keep a lamp constantly lighted.

VALUE OF LAND IN LA PLATA.

Instinct of Cattle.—Mr. Darwin, who accompanied the Beagle as Naturalist in her voyage round the world, speaking of a property to the north of Montevideo, says: "In the evening we took a ride round the estate; it contained 2½ square leagues; one side was fronted by the river Plata, and the two others guarded by impassable brooks. There was an excellent port for little vessels, and abundance of small wood, which is valuable as supplying fuel to Buenos Ayres. I was curious to know the value of so complete an *estancia*. Of cattle there were 3,000, and it would well support three or four times that number: of mares, 800; together with 150 broken-in horses, and 600 sheep. There was plenty of water and limestone, a rough house, excellent corrals (inclosures for cattle), and a peach orchard. For all this he had been offered £2,000, and he only wanted £500 additional, and probably would sell it for less. The chief trouble with an *estancia* is driving the cattle twice a week to a central spot, in order to make them tame and to count them. This latter operation would be thought difficult where there are 10,000 or 15,000 head together. It is managed on the principle that the cattle invariably divide themselves into little troops of from 40 to 100. Each troop is recognized by a few peculiarly marked animals, and its number is known; so that one being lost out of 10,000, it is perceived by its absence from one of the tropillas. During a stormy night the cattle all mingle together: but the next morning the tropillas separate as before, so that each animal must know its fellow out of 10,000 others.

[Darwin's Journal.

We have ourselves observed this remarkable propensity in cattle. There are probably more cows in Washington, D. C., than in any town in the Union in proportion to population. In summer season, we have had the curiosty to count the different herds feeding on the commons, and have uniformly found them to consist of about from forty to seventy-five, browsing together; and what is farther remarkable, the same cows always rise together, as they call it in the country, and feed, each herd, on its own range through the season.

ECONOMY IN HEATING ROOMS.

My hall is sufficiently heated by the dining-room fire, which fire-place, at the sides and back, consists of fire-bricks or slabs 3 inches thick, which, when red-hot, contain a great heat, and at the back of which, in the wall (next the hall), is a kind of hot-air closet about a yard square, and 5 or 6 inches deep, as the wall will admit; at the bottom of this closet is an air-brick to let in the cold air, and at the top is another, to allow the hot air to escape into the hall. My library is also similarly heated by the kitchen fire; and I am satisfied this plan would admirably suit a greenhouse, where it could be applied. I had mine so constructed when I built my house. J. H.

How easy would it be to have a *poultry*-house thus heated, if built at the end of the kitchen, in which a fire is constantly maintained, in the country? With the warmth produced by hot air, generated under the hearth, and at the back of the kitchen fire-place, and with a constant supply of food and lime, together with animal food of some sort occasionally, it would be an easy matter to have a *constant supply of eggs*, at least for family use; and yet, to the scandal, we were going to say, of all good *husbandry*, it is not uncommon for a family on a farm of one hundred or five hundred acres of land, to go for weeks in winter time without an egg for the good housewife to clear her husband's coffee, much more to treat him, as she would like to do, now and again, to a nice custard or pan-cake or omelette. But if the "lord and master" won't provide the indispensable pre-requisites, let him at least have the good sense not to grumble or look sour when he takes his seat at the table, where so much depends on him to have all smiles and cheerfulness. If, in fact, there be in this life any scene of true rational happiness and enjoyment, where are we to look for it if not at the board of an *industrious, intelligent farmer*, where all are gathered around from their various occupations—*provided* the head of the family feels a consciousness that by his works and his example he is doing all in his power for the comfort, happiness, and the moral and intellectual improvement of all who look up to and depend upon him?

☞ It is the intention of the Directors of the Great Western Railway to set apart one division of a first-class carriage in every train for the exclusive accommodation of ladies who travel without a male companion.

LETTER VII.

PROFITS OF SHEEP HUSBANDRY IN THE SOUTHERN STATES.—3. BY GIVING TO SOUTHERN AGRICULTURE A MIXED AND CONVERTIBLE CHARACTER.—4. BY FURNISHING THE RAW MATERIAL FOR THE MANUFACTURE OF DOMESTIC WOOLENS.

Expediency of Rotation in Crops...Consequences of omitting it on Wheat Lands of New-York...Mr. Gaylord's views...Consequences in the Southern States...Mr. Roper's Report in the Legislature of South Carolina—[Cotton Statistics of that State—Comparison with other States—General Agricultural Resources—necessity of new staples]...Judge Seabrook's Report to the State Agricultural Society of South Carolina—[Agricultural Statistics—Remedies proposed for present "distress"]...Singular omission of Wool as one of the proposed new Staples...Southern prejudice on this subject—Causes...Impropriety of the one-crop system—Diminishes crops—Deteriorates land—Multiplies insects...Fertility sustained by Rotation—Causes..."Resting"—Its inexpediency...Some of the Crops of every Rotation must be converted mainly into Manure—Superior economy of converting them into Animal Manure—Sheep the most profitable animals for this purpose...Leading principles of a profitable Southern Rotation—Six-shift Course proposed—Five-shift Course—Six-shift Course for poor soils...Col. Taylor's Four-shift Course—Objections...Comparative profit of growing Wool, Cotton and Rice, incidentally alluded to...Economy of producing the raw material for the Manufacture of Domestic Woolens...Cost of Slave Cloths per head per year...Prices now paid for these Cloths—Cost of manufacturing them—Data for estimating such cost...Great profits of Manufacturers in the Northern States—Their Dividends—Their method of exchanging Cloth for Wool—Working Wool at the halves...Cost of Cloths obtained by these methods...The South may obtain the same advantages—Natural Facilities—Cost of Machinery—On what terms worked—Operations...Cloths spun and wove by hand cheaper than the imported ones—Cost of the several processes of manufacturing them—Estimate of Cost per yard at the North...Cost of establishing Carding and Cloth-Dressing Machinery...Home-made Fabrics diminishing at the North—Causes...Same Causes will not operate to so great an extent at the South—Reasons...Probable Cost of Home-made Cloths, South.

Dear Sir: The third great benefit claimed by me among the profits of sheep husbandry in the Southern States was, "its comparative efficacy in giving to Southern Agriculture a mixed and convertible character, and thereby sustaining (or improving) all the present good tillage lands, in the place of continuing the "new and old field" system (tilling land until it is worn out, then abandoning it and opening new lands), once so general, and even now by far too prevalent."

The first object of mixed husbandry has been already stated—the home supply of the various necessaries of life. Its second, and still more important one, is the preservation of existing fertility in all soils fit for tillage.—It certainly requires no proof or argument to demonstrate the superior expediency of maintaining the fertility of soils, if it can be done, by a rotation of crops, even though each of these crops is not, separately considered, the one which would yield the greatest immediate profit. In the language of the hackneyed aphorism, it is never expedient to "kill the goose which lays golden eggs."

This constant cropping with one plant was once extensively practiced on the wheat lands of New-York, as many of their present owners can bitterly attest. Even now there can be no doubt that, on nearly all of them, wheat returns too often in the rotation. These lands were once rapidly, and are still, I fear, slowly declining in value; while the grazing lands of Southern New-York, where men have been *compelled* to be more discreet, have been constantly improving and approximating to the former in market value.*

* This calls to mind a letter which I received from an old and valued correspondent, the late Willis Gaylord, but a short time prior to his death. I had spoken of the advantages of his own, the wheat region, over the grazing region in which I reside. Mr. G. combated this idea. He thought capital invested here

The same system has prevailed on the rice, tobacco, and cotton lands of the South, and has, for a variety of reasons not necessary here to be discussed, been, in the case of the two latter at least, more fatally persisted in. I have already alluded to the exhaustion of your soils consequent on this course of culture, but to show the wide extent of the evil—its pecuniary consequences individually, and on whole States—the now admitted necessity of a rotation of crops—the equally conceded necessity of introducing some *new staple*, or staples, to render the other crops in the rotation, besides cotton, rice, and tobacco, *remunerative*—and various other considerations having a strong bearing on this whole question—I quote the following statements from *Southern*, as well as highly authoritative sources.

The Committee on Agriculture of the House of Representatives of South Carolina, through their Chairman, Hon. R. W. Roper, made a Report to that body, Dec. 14, 1842, from which the following are extracts:

"Let us now turn our consideration to one other great staple, cotton, of which the statistics are so exact that we can ascertain by calculation what our prospects are as regards competition in that article. The United States produce at present 578,012,473 lbs.—more than one-half the crop of the whole world. South Carolina grows of this 43,927,171 lbs., or 1-13 part of the quantity; but from this source of profit her palmy days are past. Every year opens new lands in the West, where congeniality of soil and climate to this commodity increases the product per acre far beyond what can be reared at home, and consequently reduces the value infinitely below the costly prices which formerly enriched Carolina. These new lands produce, on an average, 2,500 lbs. of cotton per hand, while the lands in Carolina yield but 1,200 lbs., and the expenses of a laborer being about equal in either place, reduces the Carolina cotton to half its intrinsic value. We have also the declaration of Mr. Dixon H. Lewis, in a recent speech in Congress, that cotton, divested of Government embarrassments, might be grown in Alabama for three cents a pound.

"Your Committee will avail itself of the lucid calculations of a distinguished and talented individual,* to present another view of the subject, startling in its details, and bearing strongly on the propriety of summing up all our resources. The crop of the world amounts to 1,000,000,000 lbs., which would require, at the rate of 250 lbs. per acre, 4,000,000 of acres to grow this quantity. Now, the four States bordering on the coast of the Gulf of Mexico—viz., Louisiana, Mississippi, Alabama and Florida—contain 130,000,000 of acres; proving that, if only one acre in 32 were found capable of producing 250 lbs. to the acre, these four States could, alone, supply the demand of all the markets in the world. In this calculation, the produce of Georgia, South Carolina, North Carolina and Virginia, with portions of other States, besides 150,000,000 acres in Texas, are entirely excluded. The lands of the Gulf States, therefore, and Texas, are sufficient to supply the demands of the world in all time to come. Where, then, is the hope or prospect of South Carolina in the competition? . . .

"South Carolina comprises within her borders 16,000,000 acres of land, of which only 1,300,000 are cultivated. Of this, cotton occupies 175,700 acres; rice, 80,000; Indian corn, 500,000; potatoes, 22,612; wheat, 24,079—making an aggregate of about 800,000 acres; the balance of 500,000 are taken up in oats, rye, barley, hay, tobacco, and a limited portion of other articles necessary to the supplies of life. To what use, then, is the balance of our ter-

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returned quite as good or better profits, than on the wheat lands. He thought, taken as a whole, the grazing farmers were doing better than the wheat farmers. The latter, though ostensibly *making* an equal and frequently better per centage, were *wasting their capital*. The grazing lands and the wheat lands were rapidly approaching each other in market value, by the rise of the former and the deterioration of the latter. May this not afford a parallel to what will one day be witnessed in the Southern States?

It is difficult for me to pass by the name of this accomplished writer—this pure, upright and philanthropic man—without throwing one stone on the *cairn of his well-merited fame*. He felt himself, from his infancy, cut off from the companionship of his kind, by disease and deformity; but, notwithstanding the body was "ugly," he "carried a precious jewel in his head." Triumphing over constant physical sufferings which would have prostrated most men, he made attainments in general knowledge possessed by few of his contemporaries. His range of reading and study was remarkable. In his beautiful and sparkling letters to me, every subject and almost every science is touched upon by him in a manner that shows that he at least had mastered their general principles; and, in the *abandon* of private intercourse, they seem to have been to him as the flowerets of a garden, among which his spirit could roam with that playful and joyous activity which was denied to his poor, frail body, among the objects of the outer and physical world.

Freely, unassumingly, and without an aspiration but for the good of his fellow men, his mind poured out its stores on a variety of topics in the publications of the day. Fortunately, he gave his principal attention to the subject of Agriculture, and, if not a *discoverer* (which he never claimed to be), he investigated and collated with an industriousness of research, discrimination and perspicacity, which brought the truth from all the different sources where discovery or experience had left its *disjecta membra*, into essays, so well compacted, so clearly arranged, that men of the most ordinary parts could not only understand his separate sentences and positions, but their connection and aggregate bearing, and thus master the whole subject. Peace to his ashes!

* Gov. Hammond.

ritory, of 14,000,000 of acres, to be appropriated? Are we forever to be supplied with stock from the West, bread-stuffs from the Middle States, and manufactures from the North? Is all that we can realize from our labor to be expended abroad? Nothing to be left for our own improvements or our luxury? As one means of correcting this evil, your Committee propose an Agricultural Survey of the State, to determine our natural advantages, develop our facilities of improvement, exhibit our profits and expenditures, and awaken our citizens to the importance of *vying with the rest of the human family in all the improvements of which our location is susceptible*

"The exposition which your Committee has given, showing the great competition of foreign rice with our own, and that South Carolina cannot compete with the West in the cheap production of cotton, and that she must, ere long, be driven from the market, demonstrates the necessity of looking abroad and around us *for other sources of advancement and profits than those we possess.* . . .

"We cannot expect that *accident* is continually to supply new staples suited to our soil and climate, and place us beyond the reach of contingent circumstances. We must resort to science to improve our Agriculture, and to machinery to enlarge and prepare present articles of culture, *or transplant and acclimate new products*, which will again, like those we have lost and will lose, lead off for a period in the employment of capital, amassing of wealth and diffusion of human happiness."

The House and Senate agreed with the Report, the same day, and its principal recommendation, an Agricultural Survey of the State, was adopted.

The Committee appointed by the South Carolina State Agricultural Society to consider the scheme of Col. Davie to reduce the quantity of cotton grown, made a Report, through their Chairman, Judge Seabrook, at the winter meeting of the Society, 1845–6, from which the following are extracts:*

"Another cause of our distress is that, in a large portion of the southern country, cotton is cultivated, when its production does not now, and never can, at all compensate the planter for the labor bestowed. *There* it is desirable for every one that *other branches of industry* should be pursued. . . . We do not intend to encourage the cultivation of cotton to the neglect of the other products necessary to support or comfort. Every planter *should promptly render himself independent in reference to those articles which could be produced on his plantation.* In this way he would profitably curtail the quantity of land devoted to the cotton crop. An abandonment of the present extremely defective mode of culture, and the substitution of a better, would insure a larger quantity of cotton than would be lost *by diversifying the products of industry.* In other words, his cotton crop would be larger; his corn, wheat, rice, oats, barley, horses, mules, hogs, cattle, sheep, butter and vegetables, would be the produce of his farm.

"If, however, the cotton crop is to be given up one-half, after all the reductions of it which we have sanctioned, to what else can the planter of the South so profitably turn his attention? To grain? He already, in ordinary years, produces twice as much as the Middle States, and about one-eighth more than the West. In Indian corn alone, the produce of the South, by her last census, was 300 million bushels. If the planter of cotton is engaged in an unprofitable business, much more is the grain raised. . . . *Millions of acres in South Carolina, including the lower country, are admirably adapted to the raising of rich grasses.* This might be added as another branch of industry, from which reasonable profits might be realized, and might very well be added to the cotton planter's income. The business of tanning and the manufactures of leather might be and ought to be enlarged. In this State, all the means of a successful pursuit of this branch of industry are at hand and within the reach of every one. Hides, lime, bark and mechanics (slaves) are abundant."

The remarks in both of the above extracts, though made exclusively in reference to South Carolina, will apply equally well, in many obvious particulars, to all the old cotton and tobacco growing States.

To a Northern man, accustomed from his childhood to see sheep husbandry blended, to a greater or less extent, in the operations of nearly *every farm*, and to live among farmers who regard it just as indispensable, and as much a matter of course, as the production of bread-stuffs, it seems singular enough that neither of the above able Committees, in looking for

* As has been before stated, the other members of the Committee were Judge O'Neall and W. J. Allston, Esq. Mr. A. did not concur with his colleagues in the proposition that there was not already an absolute over-production of cotton. He believed there was. In all other particulars, and consequently in all embraced in the extracts given, he concurred in the Report.

"other sources of advancement"—"new products"—"other branches of industry"—both to bring into use millions of acres of unproductive territory "admirably adapted to the raising of rich grasses," and to render profitable and preserve the fertility of the tillage lands of the State, should not have thought of wool growing—or only thought of it, as it were, incidentally—at the very heel of a catalogue of farm products, and in reference solely to supplying the home want!

Indeed, the estimate which has been set upon sheep husbandry generally, and by all classes of agriculturists, South, is a source of unmixed surprise to one acquainted with this pursuit, and with the resources of that region for sustaining it. There appears among many, if I may credit your own writers,* to be even a *prejudice* against *sheep* and sheep husbandry, *per se!* Is this because these animals bear a staple, and give employment to manufactories, which have claimed the "protection" of Government, to the prejudice, in the opinion of Southern politicians, of Southern interests?† Is any portion of it due to the scornful denunciations of the brilliant, but eccentric and cynical, statesman of Roanoke, who "would at any time go out of his way to kick a sheep"? Or is it owing to the, in most respects, justly popular writings of Col. Taylor, of Virginia? Hon. Andrew Stevenson, of the same State, in a letter to John S. Skinner, Esq., says:‡

"The prejudice which the late Col. John Taylor, of Caroline (who, by-the-by, did more for Agriculture than any man in America), had against sheep, has been the means of rendering this description of stock unpopular in many parts of the southern country. . . . If this distinguished patriot and statesman had lived at this day, he would have changed his opinion."

The impropriety and inexpediency of giving all the labor and prime land of the country to the exclusive cultivation of one or two crops, even leaving the deterioration of the lands, consequent on such a course, out of the question, is forcibly set forth in the Reports above quoted from. But that deterioration is an infinitely more fatal evil, both to individuals and States. An injudicious course of cropping can be easily changed; but, if the land is entirely impoverished, the change comes too late, until labor and capital have been employed on its restoration. The tendency, nay, the absolute connection as *cause* and *effect*, between the one-crop system and such deterioration, has been proved by too sad an experience at the South—is too universally recognized and conceded—to find a single questioner who possesses ordinary intelligence. Whether the consequent phenomena are solved by the excretionary theory of De Candolle, or the more ordinary one of the exhaustion of some of those substances which constitute the necessary food of plants, the facts presented are the same.‖ The soil yields constantly diminishing crops, until it becomes incapable of producing more than scattering and feeble plants; and the insect enemies of the latter, which would perish if deprived of their aliment by the substitution of some other plants, multiply in a constantly ascending ratio.§

* Hon. Andrew Stevenson, John S. Skinner, *et al.*, in Monthly Journal of Agriculture, &c.

† If such protection has prejudiced the South, what stronger reason why she should remunerate herself by appropriating a share of it!

‡ Monthly Journal of Agriculture, July, 1845.

‖ The theory of M. De Candolle, apparently so strongly supported by the experiments of M. Macaire, has found many believers. But the statements of the latter have been contradicted by M. Braconnet, M. Mirbel, and finally are totally overthrown, in my judgment, by the experiments and investigations of Mr. Alfred Gyde, of Scotland. Mr. Gyde shows that the minute excretions of plants have the same composition with their *sap;* and he also watered plants with a solution of their excretions, not only without injury, but to their manifest benefit! For Mr. Gyde's able Prize Essay on this subject, see the Transactions of the Highland and Agricultural Society of Scotland (March, 1846). I am not aware that this essay has been republished in our country. It certainly should be.

§ Of the latter evil, the past year furnished a pregnant example. I saw it stated last winter, in the South Carolinian (published at Columbia, S. C.), on the authority of an United States Senator, that the falling off in the cotton crop would be enormous, by reason of the depredation of *worms*. This evil is constantly increasing, and must continue to, while the planter continues to provide aliment for each succeeding horde of destroyers, by continuing on the soil the plants on which they prey.

Experience has shown that if vegetables of different classes are made to follow each other, the soil will much longer retain its productiveness.—Even when "exhausted" of some one or more of those ingredients necessary for the healthy production of a particular plant, it is found to produce others luxuriantly which do not require the lacking ingredients, or but very minute portions of them. And, by a most beautiful arrangement of physical causes and effects, when a plant is removed from the soil, and notwithstanding its place is occupied by others, a process of restoration at once commences to replace all that the absent plant has appropriated, and to prepare the kindly bosom of the earth again for its reception. Nature herself, in ministering to this beneficent end, becomes a great laboratory; and in her most ordinary, as well as her most unusual operations, she is constantly producing those chemical changes, and furnishing those chemical ingredients, which restore what has been abstracted by man's cupidity, or lost by his improvidence. The gentle rain brings down ammonia and carbon to plants. The frost rives the solid rocks, to disengage their fertilizing constituents. The sun, in his flaming path, looks down not only to warm and give us light, but to perform functions in the vegetable economy without which all herbage, except a few miserable fungi, would perish; and to all he imparts their varied and beautiful coloring. The thunder which shakes the walls of cities, and strikes man with awe, brings to our aid one of the most efficient promoters of vegetation. Even the bursting volcano converts its fiery crater into a crucible and retort, and gives off that gas which forms so large a portion of all the vegetable and animal productions of the globe: and the wild winds, which strand navies in their course, equally diffuse it over the earth.

It follows from the above positions that naturally good lands* which are more or less exhausted, will be gradually resuscitated by "rest," or an entire exemption from tillage; and hence the absurd idea that lands require physical "rest," in the same sense in which the tired animal muscle requires it, after continuous exertion. But, apart from the theory, the practice of "*resting*" lands is inexpedient, for the following reasons: If a plant is not continued on a soil until it *consumes* any of those inorganic constituents necessary to its production—if, on the other hand, it is succeeded by a plant which makes its heaviest drafts on those inorganic substances which its predecessor required the least of, and *vice versa*—the natural recuperative process above adverted to, *aided by means which lose to us none of the value of the crops*, will repair the waste made by each plant, before it again occupies the soil, in a judicious rotation. Hence, by a rotation of crops, fertility can be indefinitely sustained, and the earth each year return its increase. Thus the ends of "rest" are attained, without its great and unprofitable sacrifices.

To sustain the fertility of the soil, some portion of the crops of every rotation must be converted into manure. These are the "aiding means" above alluded to. They may be converted into green or animal manure. If the former, the whole crop is plowed under. If the latter, the crop is first partly converted into animal manure, by animals depastured on it, and then this animal manure, with the remaining vegetation, is plowed under. The last is always the most economical method, on good lands,† because the crop is worth almost as much for manure, *after passing through the*

* I say "naturally good lands," for those entirely deficient in several of the necessary constituents of a fertile soil might require ages of rest to obtain these constituents—if, indeed, they ever would, by merely natural causes.

† I have limited the assertion to "good lands," because a crop of green manure, turned under at the proper stage of its growth, will undoubtedly make rather more manure than in any other way; and it may be expedient many times to give poor lands *all*. This is especially true in the reclamation of barren lands.

bodies of animals, as it would be turned under green; and then we have all the profit made on or by the animals—meat, wool, &c.—without any additional cost. Sheep, being the best manurers, and otherwise the most profitable animals, will (with enough other animals to supply all the home demand for the necessaries furnished by them) best sustain a profitable rotation.

Here, perhaps, the discussion of this topic in connection with the subject matter of these letters should terminate; but I am unwilling to abandon it, without making a few practical suggestions as to the rotation which would be found most profitable at the South—more particularly on the valuable cotton lands, which are suffering most for the want of it. It is manifestly impossible to lay down any rule or rules on this subject, which can or should be rigidly acted upon, in all instances. Leading principles can only be declared, and, if correct, the intelligent man can always vary their application so as to meet the exigencies of his particular case.

First, I should consider it indispensable on all cotton (or tobacco) lands,* under all circumstances, to keep at least one-third of them in pasturage, to insure the proper amount of manure, over and above cotton seed, and such occasional supplies of swamp mud and marl as might be obtained at spare intervals—and all other incidental manures. Another third, I believe, should be generally devoted to grain for bread stuffs, for fattening the necessary amount of bacon, and for the winter forage of horses, mules, swine, &c. Unless the horses and mules, and, perhaps I should add, the cows, were wintered entirely, or in great part, on grain and the offal of the grain crops, one-third of the *cultivated land* in grass, would not support animals enough to produce the manure requisite for two-thirds in cotton and grain. But in making the above division, I spoke only of the arable lands fit for the growth of cotton. Most plantations have poor, or swampy, or rough lands, which would most profitably be kept permanently in grass, and these would supply the deficit. The remaining third of the arable lands might be devoted to cotton, or, in the tobacco region, to tobacco.

By the course above proposed, the cotton (or tobacco) and wool would be made the salable products. The grain, grass, dairy products, bacon, &c., would be consumed on the plantation. This is as it should be. European famine has given a stir to the latter products this year, (and it may for a year more,) in the Southern markets; but with the ordinary European demand, the old Southern Atlantic States cannot, as we have seen, compete at a profit with these commodities, which debouch through the Mississippi, the St. Lawrence, and the northern canals. With the *two wools*, as they are sometimes called, the "vegetable and animal," these States can undoubtedly sustain themselves against the pressure of any outward competition.

Such a division of crops as the one above proposed, could be effected by a six-course system of rotation. Let us suppose the land of the plantation fit to grow corn and cotton, divided into six equal fields. I then propose the following rotation:

1st year, Grass depastured.	1st year, Grass depastured.	1st year, Cotton.
2d .. do. do.	2d .. Cotton.	2d .. Cotton with yard manure, &c.
3d .. Cotton.	3d .. Cotton with yard manure, &c.	3d .. Corn with peas.
4th .. Cotton with yard manure, &c.	4th .. Corn with peas.	4th .. Small grains with grass seed.
5th .. Corn with peas.	5th .. Small grains with grass seed.	5th .. Grass depastured.
6th .. Small grains with grass seed.	6th .. Grass depastured.	6th .. do. do.

* I have not included the rice lands, because being deep beds of alluvial deposits, composed in a great measure of organic matter, and being susceptible of irrigation, they will not wear out like ordinary soils, and stand less in need of rotation in their crops.

1st year, Cotton with yard manure, &c.	1st year, Corn with peas.	1st year, Small grains with grass seed.
2d .. Corn with peas.	2d .. Small grains with grass seeds.	2d .. Grass depastured.
3d .. Small grains with grass seed.	3d .. Grass depastured.	3d .. do. do.
4th .. Grass depastured.	4th .. do. do.	4th .. Cotton.
5th .. do. do.	5th .. Cotton.	5th .. Cotton with yard manure, &c.
6th .. Cotton.	6th .. Cotton with yard manure, &c.	6th .. Corn with peas.

Supposing each of these fields to contain 50 acres, this would give 100 acres of grass, 100 of cotton, and 100 of grain (50 of corn and 50 of small grains) annually.

By this course all the hauled* manure, each year, would be given to one-sixth of the land, and consequently the same field would not receive it but once in six years—yet *every crop* would be *adequately manured.* The first cotton crop would receive an ample amount from the grass roots and the droppings of animals for two years; the second, from the hauled manure; the corn, from the manure left by the previous crop, and, if needed, by a small amount of cotton seed, ashes, (or some other mineral fertilizer,) in the hill; the small grain crop would be amply manured by the peas sown with the preceding corn; and the land would go back into grass in excellent "heart," and, if the previous tillage was what it should be, entirely free from weeds. The corn might intervene between the two cotton crops, and thus remove the objection which exists against taking two crops of the same kind in succession. But I placed cotton 4th, because there should come a manured crop at this period of the rotation, and I thought it better to give the manure to the more valuable crop, and because cotton, as the 5th crop, would not admit of the cultivation of the pea, to provide manure for the small grain succeeding. The rotation might be thus varied, however, if circumstances should seem to render it desirable.

I have put down no meadow in the rotation on the *arable* lands. But I believe the growth of hay to a certain extent, not only to supply any ordinary deficiency in winter feed beyond the quantity furnished by the usual sources—but to guard against contingencies, would be good economy in all cases. All farm animals must be well wintered, to give a profitable return in summer; and those occasional scarcities of fodder always liable to overtake the farmer, should be providently guarded against. It is never considered poor economy, in the North, to have a few tons of hay even to summer over. The necessary meadows for the plantation might be made on some of the less arable lands before referred to—and, when the tillage lands are in an uncommonly fertile state and pasturage plenty, it *would do* to mow one of the grass crops (the second one) of the above rotation, though, if avoidable, I should think the other course entirely preferable.

On poorer lands—the poorest class which can be profitably devoted to cotton growing—I would propose a five-shift course, as follows:

1st year, Grass depastured.	3d year, Cotton.
2d .. do. do.	4th .. Corn with peas.
5th year, Small grains with grass seed.	

The manure to be given to the third or fourth crop, according to circumstances, or divided between them.

On lands of a still inferior grade, but which it may be expedient to plow at intervals, I would propose the following:

1st year, Grass depastured.	4th year, Grass depastured (or mown.)
2d .. do. do.	5th .. Corn with peas.
3d .. do. do.	6th .. Small grains with grass seed.

* I mean by this, the manure from *every* source which is *carted* upon the land in quantity, as contradistinguished from that which is dropped there by animals, made by plowing under vegetables, or carried on in small quantities to drop in the hill, &c.

The number of years depastured to depend upon fertility—the poorer the land, the longer it should be kept in pasture.

The following is the rotation which was introduced by Col. Taylor, north of the cotton-growing region:

1st year, Corn.
2d .. Wheat and clover sown—if too poor for wheat, left at rest and not grazed.
3d year, Clover (and weeds) not mown nor grazed.
4th .. Clover not mown nor grazed.

Of this, Mr. John J. Thomas, one of the Editors of the Albany Cultivator, very justly remarks:

"It was materially opposed to the principles of good husbandry in several respects. It furnished vegetable manure only to the land. A large portion of the value of this vegetable growth was lost, by dissipation into the air, during its decay. The returns from the land were necessarily small, as only two years out of four produced crops for harvesting. And it greatly increased the labors of tillage, by the increase of noxious weeds."

Had this clover been fed off by sheep, a portion of the above objections would be inapplicable, and there would be no danger of the corn leaving the soil too impoverished for wheat, particularly if peas were sown with the former, to be plowed under. A crop of *weeds* is, of all others, the most to be avoided, as the seeds deposited by it will continue to sprout for years with the subsequent tillage crops, rendering them foul and difficult of cultivation.

I may be in a profound error, but I cannot but believe, after carefully studying Southern Agriculture, and the circumstances which invest it, that by adopting the six-shift system of rotation above recommended, or something analogous to it, on the cotton lands, the desideratum expressed in Judge Seabrook's Report will be attained. More cotton will ultimately, if not even now, be produced from less land: the other necessaries of life will become mainly the product of the plantation; a new staple will be introduced to employ the surplus capital, as profitable at least in its acreable products as cotton, and tending to the constant reparation, as cotton tends to the constant waste of the fertility of the land.

I will not tire you, Sir, with a comparison between the relative profits of wool and cotton growing. On looking over the answers of Southern gentlemen to Mr. Walker's Treasury Circular, (1845,) I find that the stated profits on cotton in the Atlantic and Gulf States, west of Louisiana, range from 1 to 8 per cent. on capital invested—the average of all the statements being about 4½ per cent.!

I may remark incidentally that in your own able replies to that Circular, you set down the profits of rice growing between 1842 and 1845, at 7⅓ per cent.; for the ten preceding years, at "about 8 per cent."

A reference to Letter V. will show you how these profits compare with those of wool-growing. Admitting the accuracy of the data therein given, there is no *very great* difference in the cost of growing a pound of wool and a pound of cotton!

We come now to the *fourth* point of view in which we are to regard the profits of sheep husbandry in the Southern States—"whether independent of preceding considerations, and even if the staples furnished by sheep husbandry proved no more profitable, in direct returns on capital invested, than some of the present staples, it would not be better economy, on the whole, for the South to produce the raw material and manufacture domestic woolens, particularly for the apparel and bedding of slaves, than to be dependent for them on England and Massachusetts?"

The woolen apparel and bedding of slaves, when no part of it is manufactured on the plantation, costs about $6 per head per annum. The blankets imported from England weigh about 4½ lbs. and cost a little over

$3. The Welsh plains, imported from England, weigh usually not far from 13 ounces per yard, and cost from 65 to 70 cents; and the Chelmsfords, a heavy, coarse article, from Massachusetts, from 50 to 58 cents.

Now what is the cost of manufacturing (including wool and every other expense,) cloth of the same amount of stock, and better quality, than Welsh plains? To the present weight of the cloth per yard add one-third, and you have the weight of the wool in the fleece—as bought of the farmer.* If, then, the Welsh plains weigh 13 ounces per yard, they required 17⅓ ounces of fleece-wool as stock. Wool of the quality worked into "plain cloth" or "sheep's gray," in this State, (New-York,) many shades better in quality than the stock of Welsh plains, has averaged from June to December, 1846, from, say, 20 to 22 cents a pound†—or, if pulled from the pelts of slaughtered sheep, as is the case with large quantities of it worked into these cloths, it did not, during the same period, stand the purchaser-in to exceed 18 cents per pound. Assume the average to be 21 cents per pound, and the stock of a yard of these cloths (17⅓ ounces) would cost 22¾ cents.

You are familiar with the character of the "sheep's grays" of New-York. They are worn almost universally by our farmers. Of the twenty-five thousand men you saw at the State Fair at Rochester, at least three-fourths of them ordinarily wear this quality of cloth for pantaloons, and say one-half of them for coats. Its ordinary weight is from that of the Welsh plain to 16 ounces per yard, and its style and expense of manufacture are superior to those of the former. It can be manufactured, including use of machinery, &c., and every process after the wool is received in the fleece, to fitting it for market, for *eleven cents per yard!* A merchant of this State owns a manufactory, employing say $25,000 or $30,000 of capital, which turns off from 500 to 600 yards of cloth per diem—the fleece-wool being converted into finished cloth in eight days. His whole expenses, including use of manufactory, averages, *according to his own statements*, not to exceed the above named price per yard. Add this sum to the cost of wool, and cloths containing an equal quantity and quality of stock with Welsh plains would cost 33¾ cents per yard; and you therefore pay for this class of cloths about *one hundred per cent.* beyond the first cost, for transportation, duties, and manufacturer's profits. The latter, of course, absorbs most of the immense sum thus paid, or rather *thrown* away, annually by the Southern States. The Chelmsfords, and various other woolen goods imported by you, are probably manufactured at nearly equal profits.

Is it singular, then, that "*acres* of woolen manufactories" are now in the process of erection in the North? or that existing establishments are *declaring* dividends of from ten to fifteen per cent.?‡

But I have not done with the data of manufacturing. The manufacturer above alluded to has, to my certain knowledge, exchanged "sheep's grays" requiring a pound of stock per yard, for wool of the same quality as the stock, giving a yard of cloth for 1¾ lbs. of wool. Calling this wool

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* After being washed in the ordinary manner on the back of the sheep.

† Wool has risen since December.

‡ I did contemplate an enumeration of the new woolen manufactories now building, or in contemplation, within my knowledge, in this State and New-England; but will mention but a few of the most important ones. The Bay State Mills, now in process of erection in the new city of Lawrence, Mass., will work up 2,000,000 lbs. of wool per annum. *One* of the mills, 200 feet long and six stories high, will go into operation this summer. The machine-shop, wool-house, etc., (the mere offices,) will be, including wings, *thirteen hundred feet* in length, and three stories high. Their very *sewer* will cost $25,000! A splendid steam mill has just gone into operation in Utica, in this State, which will work up 1,000,000 lbs. of wool per annum. Another of the same size is in contemplation, in Utica; another in Syracuse; another in Auburn, &c.! There never was a time when American manufactures stood on a firmer basis, or were making better profits *with a prospect of having them continuous.* This is *conceded* by the *ablest of the manufacturers themselves*, as I shall, in the proper place, show.

21 cents per pound, the cloth would thus cost the purchaser 36¾ cents per yard.

Any of the manufactories doing custom-work will manufacture these goods "at the halves," so that a yard requiring a pound of stock would cost two pounds of wool, or 42 cents. That as heavy as Welsh plains would thus cost 45½ cents, it being from 19½ to 24½ cents per yard *less than you now pay.* Yet here the manufacturer of *custom-work* admits the sufficiency of the profit, by asking no more.

Blankets are of still coarser wool, having the appearance of Smyrna, or inferior South American. They are not "sheared,"* which diminishes the waste. Neither do they need dyeing matter. But independent of these considerations, calling cost of stock per pound, and the waste from all causes the same, 6 lbs. of fleece-wool would make a blanket. To the wool costing 21 cents a pound add 11 cents per pound (of the stock) for manufacturing, and the actual cost of the blanket is $1 92. Have them manufactured by the halves, and they would cost you 12 lbs. of wool each, or $2 52.

I have in the previous estimates, based my calculations on the *market price* of the lower quality of medium wools.† But there is another and a most important view of the subject. It has already been shown that the South can produce wool, to any desirable extent, at a sum not exceeding 8 cents per pound—and, in favored localities, at a much lower rate. By the exchanging system (wool for cloth) you would get a yard of cloth equaling the Welsh plain in stock, and superior in quality, for 2 lbs. 2⅔ oz. of wool, costing the producer just 17⅓ cents! A blanket weighing 4½ lbs. would be obtained for 12 lbs. of wool, costing 96 cents!

Does this sound a little like dreaming, Sir? I ask you to carefully examine the premises, and see if there is any escaping from these conclusions?

Will the South continue to slumber on, thus throwing away the fruits of her industry? Do you tell me that her people know nothing about manufacturing, and have no taste for it? The necessary knowledge is as readily acquired by a Southern as a Northern man; and when that is obtained, and there is a prospect of *profit* ahead, the *taste* will not long be wanting! You have the capital: you have natural facilities to an unbounded extent both to propel the machinery and produce the staple. What more do you want? What more can you ask? A joint stock association of planters, at any suitable point, might cause a manufactory to be erected worth say $25,000, under the direction of a skillful and experienced machinist. This would turn off, say, 500 yards of cloth per diem. If the machinery was in all respects good, and the water-power sufficient and unfailing, a competent and responsible Northern manufacturer could be obtained (if desired), to take the establishment, furnishing hands, &c., and work the wool furnished him into cloth of the kind before described—containing about the same stock with Welsh plains, and fitting it for mar-

* After a sufficient number of fibres have been torn up from the threads by the teazles or cards of the "gig-mill" to form a sufficiently thick nap on the surface, these fibres are cropped or "sheared" by a machine for that purpose; and in superfine cloths the process is several times repeated, each time cutting off an additional portion of fibre, which is called "flocks." A dishonest custom now prevails among *some* manufacturers of working these flocks again into the body of the cloth to give them weight, denseness, and apparent firmness. By this means the gigging and shearing process can be continued on thinnish cloths until a beautiful surface is obtained, without the additional thinness and lightness consequent thereon being apparent to any but an experienced eye. Sheep's grays and other coarse cloths are gigged and sheared but slightly. In some manufactories the former process is altogether omitted, and the cloth is simply "brushed" prior to shearing. Such cloths are stronger, but do not look as well.

† Say of the quality of common South-Down and Native and Long wools, with a sufficient dash of Merino blood in the last to make them carding-wools, and to bring them to about the same fineness with the first named.

ket, for eight or nine cents a yard.* I know of a manufacturer, at no great distance from me, who thus takes a manufactory worth perhaps $8,000 or $10,000, and furnishes the cloth (of the above stamp,) fitted for market, for nine cents a yard, the owner furnishing the wool, the use of the manufactory, and the dyeing matter.† The supply of water at this establishment fails during two or three months each year; and one competent to judge informs me that seven cents would be better pay per yard, if the machinery could be kept in motion the year round. It is probable that it would cost rather more at the South to provide the necessary fixtures, obtain machinery, etc.; and it would also cost more, for a period, to carry on manufacturing, from the greater difficulty of obtaining operatives in case of losing any of those attached to the establishment. All these disadvantages, however, not of much importance at the first, will soon disappear. Slaves should, as rapidly as the nature of the case admits of, be converted into operatives, and when the number becomes once adequate to the end, it might be indefinitely multiplied, without those embarrassments which so commonly attend the attempt to mingle white and black labor.

It is cheaper to manufacture by hand,‡ (with the exception of carding, fulling, and dressing,) than to purchase your slave cloths at present prices, *if slave costs no more than free labor.*

On the average, 15 knots of *warp*, and 15 of *filling*, make one yard of flannel about 5 quarters wide. The ordinary shrinkage of this, in fulling it into cloth, is one quarter in length and width. It would therefore require 40 knots to make a yard of fulled cloth. The carding here in small parcels costs 3 cents per pound, and 18¾ cents per pound for fulling, dyeing and dressing. In considerable quantities, the carding can be hired done for 2 cents per pound, and the other processes for one shilling per yard. Spinning (by considerable quantities and for "cash-pay,"‖) can be hired done for 7 cents a *run* (20 knots) for warp, and 5 cents for filling—averaging 6 cents for both. Weaving can be hired done for 6 cents per yard (of flannel), which brings it, in the dressed cloth, to 8 cents per yard. The account would then stand thus:

	Small parcels.	*Large parcels.*
1 lb. of wool	21 cents.	21 cents.
Carding same	3 "	2 "
Spinning	14 "	12 "
Weaving	10 "	8 "
Dyeing, fulling and dressing	18¾ "	12½ "
Total	66¾ cents.	55½ cents.

Making 55½ cents the price of a yard of domestic cloth, estimating the wool at market price: estimating the latter at cost of production (8 cents), the price of the finished cloth would be 42½ cents per yard, and it is a better article for wear than either the Welsh plains or Chelmsfords.§

* I have no doubt it could be done at a fair profit in the North for 7 cents per yard. I am understood, of course, to mean that the manufacturer pays no rent, insurance, nor for repairs. The stockholders furnish the wool, which is worked up by the former, at the stipulated price.

† Modern ingenuity has reduced the expense of this to a mere trifle. Most of the "sheep's grays," you have observed, are of ferruginous hue. Those of this color are dyed principally by *tan bark*—the bark of the hemlock *(Abies canadensis)*, which is sold here at $1 75 to $2 a *cord!*

‡ I am aware that to "manufacture" *is* to *make by hand*, but I use the word in its popular and more general signification. It would have been better to have compounded a word from the Latin *machina* and *facio* (machinfacture?) to signify *made by machinery*, and thus expressed the two ideas by properly derived and definitive words.

‖ This word "cash-pay" is one of mighty import in the regulation of prices in the interior, where a very general (but now decreasing) system of barter prevails, and under which Wealth too often dictates to Want *what* it shall receive for its labor, and also prescribes the *prices* of the commodities in which it pays.

§ Home-made fabrics are usually stronger and wear better than those made by machinery, (or, in other words, *manufactured* cloths outwear *machinfactured* ones!) but this is not necessarily so. The several processes *can* be done undoubtedly, and probably, generally *are* more perfectly by machinery than by hand. But in machine-made cloths the yarn is commonly spun finer, so there is less stock in a yard. And they are submitted to processes, described in a previous Note, which farther impair their strength.

$1,500 will set up a carding and cloth-dressing factory, which, with three good hands, will turn off 50 yards of cloth per diem. By Table I. it appears that in 1839 there were but 114 of these factories south of the Potomac and west of the Mississippi, doing an annual business of $320,-938, while in the single State of New-York there were 323 factories, doing an annual business of $3,537,337! Of the 114 Southern factories 66 were in the States of Kentucky and Tennessee; 41 in Virginia; 3 in each of the Carolinas; 1 in Georgia, and in the remaining four, *none!*

The number is decreasing in New-York, as manufactories of the common fabrics, worn by farmers and other laboring men, are increasing in every direction—many of them doing custom-work either at the halves, or at a fixed sum per yard—and all of them exchanging cloth for wool. By either of these methods, the cloth can be obtained as cheaply, perhaps cheaper, than to manufacture it in families. But circumstanced as you are at the South, you can, as before asserted, manufacture more cheaply by hand (excepting carding, fulling and dressing), than to import your slave cloths at present prices, if provided with factories to perform the excepted processes. Where the institution of slavery exists, and where spinning, weaving, etc., can be done in those intervals of bad weather when the time of laborers would otherwise be entirely thrown away, it is doubtful whether any extension of even the coarse cloth manufactories would, or ought to, in an economical point of view, banish the home-made article. If we count the slave labor thus *saved* one-half the value of free labor, and dispense with the fulling and dressing* (which we usually dispensed with in manufacturing *domestic* slave cloths, in the interior of the Carolinas, Georgia, etc.), the cloth would cost but 20 cents a yard, and the dyeing might carry it to 22 cents. Let one-half the fabric be made of cotton, and the cost would be still farther reduced.†

Since the above was written, I have received the samples of Welsh plains, Chelmsford plains, and slave blankets forwarded by you. None of these goods *exceed* in quantity the estimate I have put upon them in my preceding remarks.

The Welsh plain which you state cost 65 cents per yard by the piece, (32 inches wide,) is about the thickness of rather heavy—but not the heaviest—sheep's gray. It is not, however, by many shades, so close and firm a cloth, for the want of equal fulling; and perhaps even this would not give it equal firmness, by reason of the *loose twist* of the yarn. The yarn is considerably coarser, (larger in diameter,) than that ordinarily employed in sheep's gray—but it derives no inconsiderable portion of its bulk (which gives the cloth its thickness) from the loose and imperfect manner in which it was twisted in spinning. This is particularly the case with the *filling*, which you can scarcely detach from even so open a web, without its breaking in pieces. Accordingly, the cloth tears very easily *lengthwise*, for that presenting such an *apparent* amount of stock.

With a sufficient amount of fulling, dyeing, (it is white,) and a little gigging and shearing—or simply brushing—it would become identical *in*

* But still you want carding-machines, to card the wool; for, by hand, it is a slow and expensive process.

† I was shown a new article of satinets a day or two since. It was double or broadcloth width, black, and the cotton warp dyed black, and could only be distinguished from a very fair piece of black broadcloth by examining the cut edge. The manufacturer stated that the cotton warp weighed but 3 oz. per yard; but I do not credit the assertion. One is strongly inclined to suspect that a cloth of this character could not have been "got up" for any very legitimate purpose, but that it belongs in the wooden-nutmeg and horn-flint category!

The ordinary satinet, when well made, is a profitable, cheap cloth.

appearance with heavy sheep's gray, excepting in the quality of the wool. That is inferior to any I ever saw in a single piece of the former. It appears to be of two qualities, the finest about like the Asia Minor or African ("Smyrna" or "Mogadore") wools; and this intermixed with occasional still coarser *sharp pointed hairs*, which could come only from an animal not many removes from the wild Argali.* In both, there is a peculiarly dry, harsh, wiry feeling, not found in North American wools, and which is more indicative of an inferior staple—of brittleness, and want of felting properties—than even their coarseness. The staple is not apparently a very long one. I conjecture that it is Iceland wool—or that, mixed with Orkney, or some of the coarsest short or medium staple wools of Scotland.

The Chelmsfords, (31 inches wide,) twilled, undyed,† cost, you inform me, 58 cents per yard. The plain article, (*i. e.* untwilled,) 28 inches wide, costs 50 cents per yard. The sample of the twilled, forwarded by you, is a thicker, decidedly stronger cloth, with larger and far more tightly twisted yarn, than the sample of Welsh plains. The wool is of about the same quality, though at first view it strikes you as decidedly coarser, as the longer nap shows more of the coarse fibres on the surface, and these are rendered more conspicuous still by their variety of color. But on resolving portions of each cloth back into unmanufactured wool, I can detect little or no difference in its fineness, unless it be that the stock of the Chelmsford plains possesses none of those peculiarly coarse fibres or hairs which characterize the other. The wool used in the Chelmsfords is apparently of a longer staple. It is probably South American, though it may be Smyrna or Mogadore, as it bears a strong resemblance to the wool of the broad-tailed sheep of Asia and Africa. You state that the Welsh is generally thought to outwear the Chelmsford plain. This may be true of the ordinary articles, but I think it cannot be of the samples forwarded. Of these, the latter possesses nearly double the strength of the former, and is much the heaviest cloth.

The slave blanket, 6 feet 11 inches long, by 6 feet 5 inches wide, weighing 4½ lbs., you state cost about $3 12½ by the piece (a piece containing 16 blankets costs $50). It is manufactured of a very coarse and a long stapled wool—not much fulled—with a long nap raised on both surfaces. The wool in quality resembles that used in the Chelmsfords.

On the receipt of these samples, I forwarded a specimen of the Welsh plains to two manufacturers of experience and perfect pecuniary responsibility, asking them at what price per yard they would contract to furnish me 100,000 yards of cloth of the same style and equal quality with the sample. The question was put to both of these gentlemen and received by them, as purely a commercial one—the opening of a commercial negotiation. Each stood ready to enter immediately on the fulfillment of a contract, based on his offer.

The following is the answer of one of the above named gentlemen:

HENRY S. RANDALL, Esq. MORRISVILLE, N. Y., April 20, 1847.

Dear Sir: Yours of the 13th is at hand and duly noticed. I have no wool of the quality of the sample sent, and do not wish to work foreign wool. I would like to make for you 100,000 yards like the sample, out of our American or domestic wool. I would make it as thick and tight as the sample sent, 32 inches wide, at 40 cents per yard. I could not say how much less it would cost to get up the article from the same kind of wool with that used in the sample. I do not know what that kind of wool is now worth in market. I have not worked any of it for two years past.

Yours, truly, C. TILLINGHAST.

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* Many of the unimproved breeds have, as is common with wild animals, a coating of hair over a finer pelage beneath, and it is difficult to perfectly separate them.

† A small portion of the wool employed in the filling is black, giving the cloth a dirty drab or ash color. But this I take to be the natural color of the wool.

The first answer of the other manufacturer, S. Newton Dexter, Esq. of Whitestown, Oneida Co., N. Y., (head of the Oriskany Manufacturing Company,) it is not necessary to transcribe entire. Mr. Dexter informed me that his machinery is calculated for the manufacture of fine cloth; that the carding of coarse wool would injure his cards; that its manufacture would throw him out of his regular course of business; that he had no wool of the quality used in the sample on hand; that he should be compelled to use domestic wool; and that for these reasons and some others named by him, he could not undertake to fill the contract at less than 42 cents per yard—which he knew would be considered a high price.

Mr. Dexter being a gentleman equally distinguished for his correct and able business character, and for that capacity and range of information which give value to his opinions on all the topics connected with this investigation, I addressed him a second communication, asking him what he could manufacture the cloth for, giving him time to procure stock of the same quality used in the sample. I also inclosed him proof-sheets of the preceding part of this letter, asking him his opinion of the correctness of my statements, in relation to the general cost of manufacturing, &c. The following extracts from his reply will be read with interest:

Col. HENRY S. RANDALL: WHITESTOWN, April 24, 1847.

Dear Sir: Yours reached me on Wednesday. There is no doubt at all but what if I felt certain that wool could be procured of the quality of which your sample was made, at a price proportionably low, I could have afforded to have manufactured the cloth at 37 cents per yard, as well as at 42, and use our coarse native wool, at a probable cost of 25 cents. . . . . There has been an advance of more than 70 per cent. in the price of lard oil. The price a short time since was 55 cents. The last I bought cost 95 cents in New-York. Five quarts of this oil are wanted to every 80 yards of these cloths. . . . . I cannot imagine where the wool was from out of which the sample was made, probably from Iceland—for I recollect some twenty years ago the Oriskany Manufacturing Company obtained just such wool somewhere, when American wool was deemed too high, and manufactured it into miserable satinets, by which they lost a great deal of money. The wool was said to have been imported from Iceland. I was one of the Directors of the mill then, but had nothing to do with "operating" it. . . . .

You request my opinion as to the correctness of your statements of the probable cost of Welsh plains, &c., and generally of the statements put forth by you on the subject of woollen manufactories. I am not *very good* authority as to the cost of manufacturing coarse woolens, never having done much in that way. I am free to say, however, that your estimates may generally be relied on. Certainly you have allowed liberally for what would have been the cost of such wool by the pound last year; but I think your estimate of 17½ oz. of wool in the fleece, out of which to manufacture one yard of cloth 32 inches wide, similar to the sample inclosed in your letter, too low. I should think it would certainly take 20 oz., or 1¼ pounds. The allowance of 11 cents for manufacturing will, I am inclined to think, pay charges, but it will not afford any profit, nor interest on capital, nor leave anything for keeping machinery in repair. It is a very close calculation, when fuller's soap, lard-oil, &c., are so high.

The sheep's gray cloths that you speak of, you will observe, are generally not quite ¾ wide—say 26 inches—while the sample you sent me was 32 inches. One pound of well washed fleece wool *will* make a yard of sheep's gray of medium quality; but unless the goods are *flocked*, the calculation is a very close one indeed.

I am inclined to think that you overestimate the profit of manufacturing woolen goods, although I admit that in well-managed institutions, that have the most improved machinery, with an abundant capital, the profits have, at times, been very large indeed, and our friend Samuel Lawrence, of whom you speak, is the most prominent example of such a manufacturer within my knowledge. . . . . Every new manufactory erected, if built with judgment, has one advantage over those already in operation, and that is, they have availed themselves of all the improvements of those in operation. And as machinery is constantly being produced at cheaper rates, a factory of increased capacity will probably have cost less money. . . . .

The Oriskany Manufacturing Company is the oldest company now manufacturing woolen goods in the United States. They have made satinets which have sold readily at $3 50 per yard, and have made cloths which have as readily sold for $12 per yard. Satinets full as good can now be bought at 75 cents, and handsomer, if not better cloths, for $3. What a change is here! And yet the Oriskany Manufacturing Company was perhaps never doing better than now. This Company availed itself of the opportunities offered last year to obtain wool very low, to purchase a supply for nearly two years. This year the business will be good, that is, pay a profit of 10 per cent. on investments, even where wool is purchased at current rates; but I do not believe it will pay more. I will furnish you with a brief estimate:

A mill with a capital of $100,000 will manufacture, say 90,000 yards of 6-4 cloth, which will bring in market an average of $1 50 per yard, or		$235,000
To get these cloths into cash (for they are sold at 8 months, and are charged with commission of 5 per cent., and other charges equal, in all, including interest, boxing and transportation, to 12 per cent.	$16,200	
Cost of 225,000 lbs. of wool at 30 cents	67,500	
" 3,300 gallons sperm and lard oil at $1	3,300	
" Soap, soft and hard	3,500	
" 800,000 teazles	1,000	
" Dyeing materials of all kinds	11,500	
" Fuel	1,000	
" Paper, tape, twine, nails, lumber, cards, candles, &c.	3,000	
" Labor, $5,000 per quarter, or	20,000	
" Insurance	2,000	
Total		$122,000

If I were under oath, I do not believe I should alter any of these items—or, at least, I should add as often as I diminished, I have no doubt. You may think $1 50 a low average for cloths, but it must be a very fair cloth to bring that sum, I assure you. You may also think 12 per cent. a high charge for getting these cloths into cash, &c., but it is scarcely what we pay. And the records of our wool book will show that 30 cents is the cost of such wool as we work. And our books will prove that it has taken, for many years past, 2½ lbs. of wool to make a yard of broadcloth. There is 13 per cent. left for profits here, because I have not allowed one cent for repairs or taxes, or for the agents' salaries, which will swell the expenses fully up to $124,500—within a fraction of swallowing up all over 10 per cent. . . . . Well, I admit that 10 per cent. is a great business; but you speak of 15, and that is going too far. . . . .

Very respectfully your friend and obedient servant, S. NEWTON DEXTER.

It will be seen from the foregoing letters:

1st. That where their machinery is adapted to it, manufacturers are willing to make and sell goods of the same amount of stock and style of manufacture, with Welsh plains, out of *domestic wool* for 40 cents per yard; and that manufacturers of perfect pecuniary responsibility are ready to contract so to furnish it. This (apart from the small item of transportation) is *twenty-five cents* per yard, or about *thirty-nine per cent.* cheaper than you now obtain these cloths: and an article manufactured from domestic wool would, by reason of the far superior *strength* and *felting property* of the stock, be much stronger and more durable than the foreign goods.

2d. It will be farther seen that a skillful and responsible manufacturer would furnish cloth, corresponding with Welsh plains, at 37 cents per yard, could he procure the same quality of wool now employed in the manufacture of those cloths at a price proportionably low with domestic wools, calling the latter 25 cents per pound.

Blankets are manufactured at equally exorbitant profits; and the Chelmsfords, paying less transportation and no duties, approach the same standard of profit—though, judging from your samples, I consider them the cheapest goods.

I have given Mr. Dexter's undoubtedly fair and candid statements in the premises—my object in these letters being, as I once before have stated, to arrive at *truth*, and not to support a favorite hypothesis, or to maintain, at all hazards, preconceived views.

My own estimates and those of Mr. Dexter, of the actual cost of manufacturing Welsh plains, it will be seen, differ—but not so materially as would as first appear, when the advance of wool, soap, oil, &c., are taken into consideration. I have no doubt that, in making his estimates, he had his eye more on the better and more elaborate machinery of his own mills—the more expensive and perfect performance of the various manufacturing processes common in that class of establishments, than on the cheaper machinery and processes necessary in the manufacture of coarse goods. My estimates, or rather statements of cost of manufacturing sheep's gray, you will recollect, were given on supposed *actual knowledge* of what a manufacturer of these goods *had made them at.* To these Mr. D. seems to take no exceptions.

In relation to the shrinkage of wool, Mr. Dexter undoubtedly bases his

opinion mainly on his own experience in manufacturing broad and other cloths of fine quality. In these, the shrinkage of the wool from the fleece is concededly at least *half.* And the firm, well finished and honestly made Oriskany cloths, I have no doubt require the highest rate of shrinkage in the stock. But Mr. D. concedes that a "pound of fleece wool will make a yard of sheep's gray of medium quality." Now the Welsh plain, of the quality of the sample, weighs 13 oz. per yard. As I have already stated, "the ordinary weight of the sheep's gray is from the weight of the Welsh plain to 16 oz. per yard." Thus a yard of "medium" sheep's gray outweighs a yard of the Welsh plain. If this is so, the former, of course, requires the greatest amount of stock, the mere *width* making no difference whatever. Mr. Dexter was led into this error, evidently, by overestimating the *weight* of the Welsh plains—and this arose from the smallness of the sample submitted for his inspection.

His statement of the cost of manufacturing broadcloths by the Oriskany Company is entitled, I have no doubt, to the fullest reliance. In consequence of his remarks on this topic I have changed a statement in the preceding part of this letter alluded to by him, for fear it might convey an erroneous idea. Where I spoke of "existing establishments declaring dividends of *fifteen* per cent.," I have changed it, so that it now reads "from *ten* to *fifteen* per cent.," these being the dividends, respectively, of the Oriskany and Middlesex* Companies last year, and exhibiting about the *range*, probably, of well-managed companies.

* Mr. Lawrence's great establishment at Lowell, which works up 1,700,000 lbs. of wool per annum.

BAY-SIDE FARMING IN MARYLAND.

THE region referred to in the following, lies, as will be seen, in Talbot County, Maryland, and perhaps no district of equal extent contains a larger proportion of *cultivated cultivators.*

For years past they have been known to display an exemplary solicitude on the subject of *accumulating manures.* Their practice may be said to be distinguished for perseverance and success in this branch of rural economy, and especially as it relates to the management of their cattle in the summer season. It gives us pleasure to be enabled to present here the results of their diligence and good management in these respects. An estimate of the average crops of the district would have made the Report yet more satisfactory.

Hon. JOHN S. SKINNER: TALBOT COUNTY, 20th April, 1847.

Dear Sir: At the last meeting of the Board of Trustees of the American Agricultural Society for the Eastern Shore, the following Report having been read, it was

Resolved, unanimously, That it be published in the Maryland Farmer and in The Farmers' Library.

Respectfully, M. TILGHMAN GOLDSBOROUGH, Secretary

The Committee on "BAY-SIDE FARMING," appointed by the Trustees of the Agricultural Society for the Eastern Shore of Maryland, beg leave to report, in part:

That they have had the interesting subject referred to them under consideration for several months past, and have found some difficulty in their investigations, in consequence of the want of facts on which they can rely. They have, at last, been obliged to depend upon tradition and their own limited observations.

That great improvements have been made in the Agriculture of this beautiful region is manifest to all who have any acquaintance with it, and your Committee will endeavor to show how they have been brought about.

The waters of the Chesapeake Bay, Miles River and Choptank, nearly embracing this peninsula, afford large annual supplies of seaware, or sea-ores—and their banks contained large quantities of decomposed oyster-shells, now nearly exhausted. It is believed that the

first man in the district who used sea-ores to any considerable extent, as manure, was the late Lloyd Tilghman, Esq., as far back as sixty years; but he does not appear to have had many immediate followers. About thirty years ago much attention was drawn to crops of corn and wheat grown by Mr. William Hambleton, on land proverbially poor; principally by the use of these materials, aided by a well-littered farm-yard. This example had a powerful effect. It showed, clearly, that increased products were within the reach of all; and the use of these valuable articles, so long neglected, extended rapidly. Wherever they were within reach they were used, and invariably with success. Many who had no bank-shells resorted to lime from oyster-shells collected from creeks and rivers washing their shores, and this practice still continues with good effect.

The confining of cattle during the whole of the winter season on large accumulations of rich earth, pine rushes, straw, &c., in yards with permanent or temporary shelters, about the same time became more general, and appeared to suggest the penning of them on similar heaps during the summer—now almost universal.

Your Committee consider this a great improvement on the "ambulatory" cow-pen of the last generation.

The pen is generally from thirty to forty yards square—half-worm fence staked and capped, with bars or a rough gate; a good foundation of marsh or rich soil is covered over with pine rushes ready to receive the cattle in May. In this pen they continue to be confined every night until late in October, the pen receiving fresh stuff about once a fortnight. In this way the bank, under favorable circumstances, becomes more than two feet deep, and is hauled out before winter, when the fields are firm, ready for spreading in the spring. Such a heap, with the winter crop of manure, is frequently sufficient to dress over the field intended for corn. The pen is generally made in that field, and supplies of earth are obtained from the woods and from turning rows, or low places plowed up as drains, wherever required. In lands so level as those in the Bay-side, the removal of the rich soil on a head-land is important; it acts as a broad though shallow ditch, and discharges much water after heavy falls of rain, while the leads serve to conduct it off without obstructing cultivation. They are generally about three feet wide and the usual depth of plowing.

A little more than twenty years ago the rich deposits of earth found at the heads of creeks began to be hauled out as manure. It appears wonderful that these natural compost beds should so long have been overlooked. They have been used to great extent and with unfailing advantage.

No marl has been found in the district, except in the neighborhood of the Royal Oak, on the lands of Major Dawson, Captain Meister and Mr. Townsend, who use it with much success.

Our waters afford an annual supply of fish-manure in the Skate. They arrive, unfortunately, at a busy season. Some are taken by farmers who have seines, while others buy of those who make a business of catching them for sale.

Ashes and guano in a few cases have been imported from Baltimore and applied with satisfactory results. Ashes can be laid down on our shores at a cost of 12½ or 13½ cents. An enterprising practical farmer, Mr. Edward Covey, last year purchased and applied no less than 5,500 bushels, and this after ascertaining their value from several years' experience. Your Committee consider this a fact of great value. It is difficult to introduce manures which require a direct outlay of money; yet it is obviously proper, by all reasonable means, to enrich our lands that our labor be not wasted.

The manner of using sea-ores is various. Some put them in large heaps to be distributed at leisure; others dress their cow-pens with them, or drop them in the field to be spread at some distant day. The best way is to double-list* them in at once on corn land to be crossed and planted next spring; thus evaporation is avoided and labor saved.

Your Committee think it unnecessary to describe the mode of cultivation farther than to remark that it is much more thorough than formerly, and altogether in ridges. Few omit to sow clover-seed; but little clover is cut for hay. It is either grazed off or turned in. Plaster of Paris is not used, no benefit having been found from repeated experiments.

The four-field system, without fallow, is thought to be the best for the improvement of land, a field of clover lay to be added when in sufficient heart to bear the change—making one in corn, two in wheat and one in pasture. This is believed to be the most profitable course of husbandry, and is followed by the best and most successful farmers in the district. The old modes of securing the corn crop and fodder still continue. The seeding of wheat commences the first week in October and ends early the next month. Some of those who have no fallow are enabled to house their corn before they begin to seed wheat.

In conclusion, your Committee, in the absence of records of crops, are under the necessity of resorting to conjecture; and they hope that they will not be deemed extravagant when they express the opinion that the products of the Bay-side district have been, within the last twenty or thirty years, quadrupled.

All which is respectfully submitted.

S. HAMBLETON,
W. H. HARRISON.

Talbot Co., Md., Feb. 15, 1847.

* In this level country the cultivation is uniformly in narrow ridges, and the backing of four furrow-slices together in the furrow between two of the ridges is called "Double-Listing."

FATTENING CATTLE.

A DISSERTATION ON THE PHILOSOPHY OF FATTENING CATTLE...PART II.

Much discussion has arisen between Mons. Dumas and Baron Liebig respecting the formation of fat; the French philosopher maintains that the vegetable which is partaken as food by the animal, possesses, already formed in its structure, all the fat which is absolutely essential for the animal; and that, like the gluten which is necessary for the formation of muscular or fleshy fibre, the phosphate of lime for the bones, and the starch or gum for the formation of animal heat, the fat which is contained in the vegetable is destined to supply the fat in the animal body.

On the contrary, Baron Liebig contends that if the animal is properly supplied with a greater quantity of the non-nitrogenous constituents of the food—viz. the sugar, starch, and gum, than are necessary for the proper supply of the demands in the animal heat, they become converted into fat in the animal economy. I am inclined to support the hypothesis of Mons. Dumas; for, in my humble opinion, I think it both simple and beautiful; and, if we take into our consideration the animal in its primitive and original state, I conceive the accuracy of the theory cannot for a moment be questioned. But we must remember that the great quantity of fat we see accumulating in those oxen, sheep, and other animals, which we keep confined in our stalls, originates from an abnormal condition of the system, and is produced by the circumstances under which the animal is placed; and as such, in addition to the fat already formed in the vegetable, the animal possesses the power of secreting an additional portion of fat from the food which it consumes. The earthy and saline substances which are contained in the crops themselves have very important duties to perform in the animal body; thus, for example, they afford a supply of phosphate of lime for the due formation of bones, as well as the saline particles which are constantly present in the blood, flesh, softer tissues, and secreted fluids of animals. How far the ordinary cultivated crops are capable of properly answering the functions thus required of them, you will see on referring to the following Table:

TABLE III.

ON THE AVERAGE COMPOSITION OF CROPS.

100 Parts.	Water.	Woody Fibre.	Starch, Gum, or Sugar.	Gluten and Albumen.	Fatty Matter.	Saline Matter.
Wheat contain of.....	16	15	55	10 to 15	2 to 4	2·0
Barley	15	15	60	12	2·5	2·0
Oats	16	20	50	14	5·6	3·5
Beans	16	10	40	28	2	3
Peas	13	8	50	24	3	2·8
Potatoes	75	5	12	2	0·3	1
Turnips	85	3	10	1	?	1
Carrots	85	3	10	2	0·4	1
Meadow Hay	14	30	40	7	2 to 3	5 to 10
Clover Hay	14	25	40	9	3	9
Pea Straw	12	25	45	12	1·8	5
Oat Straw	12	45	35	1·3	0·8	6
Wheat Straw	14	50	30	1·3	0·5	5
Barley Straw	14	50	30	1·3	0·8	5
Buckwheat	18	18	45	10	2·6	2·3
Maize	13	16	51	10	5·6	2·5
Rice Dust	14	{ 77 }		2	5·2	2·2
Linseed (good)	10	{ 27 }		22	36	4
Oil-Cake	15 to 20	15 to 24	30 to 50	12 to 22	5 to 14	5 to 10

You will easily perceive from this useful Table, that 100 parts of the various species of crops grown by the farmer contain very variable proportions of dry solid food; thus, in order that the animal may obtain the same equivalent of dry food as 100 lbs. of hay would produce him, he must consume not less, but probably more, than 600 lbs. of Swede turnips or carrots, or 300 lbs. of potatoes; but of this dry matter, you will please to bear in your recollection, the composition exerts a very material influence over its value as food. I have described the manner in which the gluten, casein, and albumen of the vegetable are converted into the blood, flesh, softer tissues and fluids of the animal: hence young animals which are supplied with food containing much of these muscle-forming

principles are found to grow rapidly, and their muscular frames will be duly developed: but, unless they are liberally supplied with such substances as fat, gum, and starch, by which the animal heat is formed and kept up, the animals will be muscular, but utterly unfit for the butcher's purpose. It is a very common practice to feed young growing pigs upon the refuse of the slaughter-house, in some places, such as the blood and intestines of the slaughtered animals; and in France, many hundreds of pigs are annually fed upon horse-flesh; these pigs grow rapidly, and their muscular frames are finely developed, but they do not become fat, unless they are properly supplied with a liberal portion of non-nitrogenous food, such as potatoes or meal would yield.

As it is only from the nitrogenous constituents that muscle is formed, it has been supposed that the quantities of these substances contained in any given article of food would be a fair estimate of its feeding value; and, under this supposition, Mons. Boussingault has constructed some Tables of the proportion of nitrogen contained in different vegetable substances. The late Rev. W. Rham has published in *The Journal of the Royal Agricultural Society of England*, some Tables of the relative value of different kinds of food as arrived at by practice; but all such Tables must, to a certain extent, be arbitrary, inasmuch as the quantity of these animal substances consumed by the animal must be influenced by circumstances; the animal taking active exercise requiring a much larger quantity, in order to supply the natural waste which would occur under these circumstances, than if the animal was at rest.

We have also seen that the starch, gum, and sugar of the vegetable supplies the constituents by which the heat of the animal is maintained; and as this heat never varies during health, whatever variation may occur in the temperature of the atmosphere or apartment in which they are placed, it follows that the lower the temperature, the larger will be the quantity of carbon consumed in the animal body; this increased consumption arising from a larger portion of oxygen being introduced into the body during cold weather, than when the temperature of the atmosphere approaches nearer that of the animal: hence, animals will consume a larger amount of food during the winter months than in the summer season, and those which are exposed to the chilling blasts of winter, more than those fed in sheltered situations, warmth being equivalent to a certain supply of food. With this remarkable fact before us, we cease to be surprised at the enormous quantity of train-oil and fat which is consumed by the Greenlander, while the inhabitants of the tropics exist upon fruits and light, farinaceous diet. In the former, the surrounding atmosphere is constantly robbing the body of its heat; while in the latter the temperature of the air approaches so near to that of the body that a little additional heat is sufficient to maintain the requisite temperature. Exercise, also, by increasing the number of inspirations, introduces into the body a larger amount of oxygen than would otherwise be inspired; and as this never leaves the body without undergoing a change, it follows, as a matter of course, that the greater the number of inspirations taken within a given time, the larger will be the demand for food to supply the consumption in the body. Hence we find that an increase in temperature, with diminished exercise, tends to lessen the quantity of food consumed, and also to increase the weight of the animal. This fact was clearly proved by Mr. Childers in feeding sheep. In this experiment he selected from his flock forty sheep, and divided them into two lots of twenty each; one lot was left in the field, which had a dry and sandy soil; the other lot was placed in a shed, upon a floor made of pine-planks, in order that they might be kept dry, the floor being swept once a day. The experiment commenced on the first of January, when the twenty sheep in the field weighed together 184 stones 4 lbs., while the weight of those placed in the shed was 183 stones 3 lbs.; each lot had as many turnips as they could eat, which averaged 27 stones per day; each sheep was also allowed in addition, half a pound of linseed-cake, and half a pint of barley per day, with a little hay, and unlimited supply of salt. For the first three weeks each lot consumed equal portions of food; but in the fourth week, the sheep confined in the shed ate a less quantity of turnips, by three stones per day, than those in the field; and on the first of February they had gained in weight 21 stones 11 lbs., while those in the field had only gained 15 stones 14 lbs. By the ninth week of the experiment the sheep in the shed had diminished their consumption of turnips two stones more, and also three pounds of linseed-cake per day; and on the first of March the shed-fed sheep had gained 10 stones 10 lbs. more in weight, while the sheep in the field had only gained 8 stones 8 lbs.; and at the end of the experiment, on April the 1st, the shed-fed sheep had gained in the last month 23 stones 15 lbs., or in the three months 56 stones 6 lbs., while the sheep in the field had only gained 12 stones 10 lbs. in the month, or in the three months 36 stones 8 lbs., making a difference in favor of the shed-fed sheep of nearly twenty stones; the sheep in the field consuming the same quantity of food during the whole time of the experiment. In this experiment we have convincing proof that the quantity of food required by an animal will be less in proportion to the increase of temperature; and that when a liberal diet is allowed, but without shelter, much of the constituents of the food will be consumed to keep up the heat of the animal, which would be otherwise stored up in the body as fat, if no such cause of waste existed; and hence to the influence of cold is to be attributed the

difficulty of fattening animals in cold weather, or in bleak, unsheltered situations.

I may here state to you some experiments which were made by that truly philosophical agriculturist, Mr. Morton, at Earl Ducie's farm, at Whitfield, as illustrative of the effects of an increase of temperature and diminished exercise upon the feeding of sheep. In the first experiment five sheep were fed in the open air, between the 21st of November and the 1st of December; they consumed 90 lbs. of food per day, the mean temperature of the atmosphere being 44° of Fahrenheit's thermometer; at the end of this time they weighed 2 lbs. less than they did on the 21st of November. In the second experiment, five sheep were placed under a shed and allowed free motion, the mean temperature being 49°; they consumed at first 82 lbs. of food per day, then 70 lbs.; at the end of the experiment they had gained in weight 23 lbs. In the third experiment, five sheep were placed in the same shed, but were not allowed to take exercise; they ate at first 64 lbs. of food a day, then 58 lbs., and increased in weight 30 lbs.

Darkness, in combination with rest and warmth, tends mutually to facilitate the fattening process, by removing those causes of excitement which might otherwise exist, and which would tend to an increased consumption of carbon or fat-forming principle in the lungs. It is well known to the practical farmer, that restless animals consume a larger quantity of food, and fatten much slower, than those of a quiet disposition; and as it is the object of the feeder to produce the largest weight of flesh with the smallest quantity of food, all those collateral circumstances should be attended to which will facilitate the attainment of the desired object.

Another important point to be properly attended to in the management of cattle is the regularity of their feeding; inasmuch as the gastric juice is secreted by the glands of the stomach at the accustomed time of feeding; and therefore, if there is no food for it to act upon, it irritates the coats of the stomach itself, producing a degree of inquietude and restlessness which is highly injurious, and tends to check that steady progress of the animal which it is so desirable to maintain. M. Von Thaër, in his work on "The Philosophy of Agriculture," informs us that, in fattening, care should be taken to maintain a uniform and, particularly in winter, a somewhat high temperature Light must be intercepted; for just in proportion as it keeps up the due health of cattle, so does darkness accelerate the attainment of the required degree of fatness. The repose and contentment—the happy freedom from anxiety, arising from the certainty of receiving their food in proper time and measure—contributes so much to the fattening of cattle that a much more plentiful supply, given irregularly, cannot make up for the want of order. The hour for feeding, and the quantity of food, may be variously regulated, but a system when once adopted should be strictly adhered to.

The saline and earthy matter contained in the food is by no means an unimportant feature. The animal, it must be borne in mind, requires that the food or plants upon which it lives should supply phosphate of lime for the due formation of its bones, and saline matter for the blood; and it is a truly beautiful provision of Nature, that plants will not grow in soils which are destitute of those constituents required in the economy of animals: hence the advantages which are derived from the employment of such manures as bones, guano, Croggon's and other saline manures, or the urine of cattle, &c., in the growing of our commonly cultivated crops.

The due proportions of which these different constituents of the food are required by the animal, vary at different periods of its growth, and also at different stages of its approach to that degree of fatness which fits it for the shambles.

In the young and growing animal, there will be a much larger demand on the food than there would be in after-life. The muscles require to be enlarged by the addition of more gluten or muscle-forming principle than would be necessary to compensate for the natural waste which is continually going on in the body, and the food must supply an increased quantity of phosphates for the growth of bone; the lungs are more active, and a greater number of inspirations are made in a given time, by which more carbon is consumed: hence the necessity of supplying the growing animal with a richer and far more nutritious diet than would be required by the adult, and of feeding at shorter intervals.

Nature has prepared in the milk of the maternal quadruped a species of food suitable to the wants of the young animal; and a glance at its composition, which is pointed out by chemical analysis, will soon convince us how admirably it is adapted to fulfill the purposes in the animal economy:

TABLE IV.

COMPOSITION OF MILK.

Butter	27 to 35
Casein or Cheese	45 to 90
Milk-sugar	37 to 50
Phosphate of lime	3 to 10
Salts	7 to 10
Water	881 to 805

The sugar of milk, with the butter, supplies the materials which are consumed in the lungs of the young animal by which the animal heat is properly kept up. The casein, or cheesy matter, yields the materials for the growing muscles, and the gelatine of the bones; while the phosphate of lime, dissolved in the water, supplies the earthy matter for the bones. The quantity of milk, and the proportions of the ingredients which it contains, vary with circumstances, such as the breed of the cow, the food with which she is supplied, the time of her calving, her age,

and state of health. It is also materially influenced by the temperature of the atmosphere; warmth producing similar effects on the composition of the milk as on the fattening of the animal; the colder the air, the less butter will the animal yield in her milk. This fact is well known to farmers, the cause being the larger consumption in the lungs of the animal (to retain its heat against the cooling influences of the external air) of those principles in the food from which the butter is formed. As an illustration, I may quote an account of an experiment made under the directions of that practical agricultural chemist, Mr. Gyde, and which is well worth your notice.

"Six cows, during the warmest part of the summer of 1844, when in the field, yielded, on an average, 14 quarts of milk each; as the season advanced and the weather became colder, the quantity of milk steadily diminished, and of course with it the butter. In the early portion of November, four of the six cows were placed in a house, the floor of which was boarded in order to keep them dry. Light was nearly excluded, and the mean temperature of the house was kept at about 55°, the animals having barely enough room to lie down in their stalls; their diet was composed of cut turnips, hay, chaff, and a little ground lentil mixed with the chaff. For the first few days the animals were evidently uncomfortable in their new habitation, and their yield of milk diminished. At the expiration of three weeks the milk had again increased, and the quantity given was equal to that of the best yield of the summer. By the middle of December—the cold being then intense in the open—the cows gave 13 quarts each of rich milk, from which a proper quantity of butter was made. Animals when yielding milk require a richer food than when they are dry, since it is from the food taken that they are enabled to secrete their milk; and if their food does not contain a sufficiency of the elements required, the milk is less nutritious: hence the growth of young and suckling animals is less rapid, and its future health and strength of constitution suffer by the treatment which it receives when young. When sheep are fed upon turnips, and in winter, during the time they are giving suck, it is an excellent plan to allow a portion of oil-cake, or linseed, or pea or bean meal, as part of their daily food; such addition greatly improves the secretion of milk, the lambs grow rapidly, and fatten much earlier than when no such addition is made, and the sheep are found to be in much better condition in the spring. In the rearing of calves, likewise, it is desirable that they should have the whole milk, and not be supplied after the first two or three days with milk that has been skimmed, as is the custom in some parts of England. The practice of the late Earl Spencer, in feeding calves, was to allow them the unskimmed milk for the first three months, and afterward to give them skimmed milk for the first three months, and afterward to give them skimmed milk mixed with barley or oatmeal; this practice was found to succeed remarkably well; but I am inclined to believe that pea or bean meal mixed with linseed would have probably been better than oat or barley meal, since the bean and pea contain vegetable casein, which is identical in composition with the casein of milk, and forms an admirable substitute for it; while the soluble gum and mucilage of the linseed would be the more easily acted on by the stomach of the young animal than the insoluble starch of the oat or barley.

In fattening calves for veal, attention should be devoted to the production of fat animals of moderate size, veal of this description being most sought after by the epicure. The animal should be kept perfectly quiet, and placed in as warm a situation as convenient, that there may be as little loss of the fat-forming principle as possible; and a gloomy situation, not amounting to actual darkness, is found, by experience, greatly to assist the above means, by inducing tranquillity and a disposition for sleep. The food should be rich, and regularly supplied, and the strictest attention to cleanliness should be observed. Bleeding is occasionally resorted to by some feeders, and its effect is to check the too rapid development of muscle, while it does not interfere with the regular accumulation of fat in the body. Animals intended for stock should be allowed free exercise, that their muscular frames may be well developed; and their food should be of a nutritious character, containing sufficient gluten to supply the full demand of their growth. They should have sheds to go into at night and during rain, with a dry bed to lie upon; animals which are so treated will grow rapidly, fatten much faster when required, and be of a stronger constitution than those fed upon coarse, inferior, and unwholesome food, which is unfit to supply the demands of the system, producing an imperfect development of the animal frame, and not unfrequently engendering diseases of a troublesome and frequently a fatal character.

Time, gentlemen, warns me to conclude I have endeavored to detail in a few words, what is known on the subjects by our best animal physiologists, who have applied their theories to the rearing and feeding of cattle. If, by the knowledge I have imparted to you in this Lecture, you are enabled to promote your own interests, and that of the public, by better regulating the treatment of your live-stock, I shall not have addressed you in vain. I am the theorist, you are the practical men; your practice and my theory (or rather the theories of sound philosophers) combined, cannot, when properly managed, but conduce to your own pecuniary benefit, and that of mankind in general. Accept my thanks for your kind attention, and, for the present, I respectfully say, farewell. H. W. D

['The (London) Plough.']

IMPROVED REAPER.

McCORMICK'S PATENT VIRGINIA REAPER, IMPROVED.

"Whatever a man shall sow, that shall he reap."

THE vast disproportion between land and labor, and the dearness of the latter, lead to a constant stretch of ingenuity to contrive, in every department, labor-saving implements. Our limits, too, seem to be extending yet faster than the increase of laborers, great as that is, by immigration and natural increase.

While this state of things continues, as it must do yet for half a century at least, we shall go on skinning district after district, and State after State, of their virgin fertility, just as the dairy woman passes along, skimming off the cream from pan after pan. Of most crops it is easy to, and too many do make more than they can harvest and take care of. It was, we may suppose, in view of this greedy and improvident disposition, that it was ordained, "Whatever a man sow, that shall he reap."

Some labor-saving implement has long been a desideratum for harvesting *wheat and grass crops*, particularly on the western prairies, where land is at once so cheap and so fertile. To meet this demand, Mr. OBED HUSSEY, of Baltimore, and Mr. McCORMICK, of Virginia, have been, we believe, most successful. In what consists the difference between their Reapers we are not exactly advised, and therefore not prepared to pronounce upon their comparative merits. We happen to know on good authority that Mr. Hussey's is in high repute among the working, and what is better, if better need be, the *thinking* farmers of brave "Little Delaware," and we shall be ready to make known its particular excellence, in any authentic way that he or his friends may enable us to do.

In the mean time, we have had placed within our reach the illustrations which follow, in proof of the availability and efficiency of McCormick's machine, which appear to commend it very strongly to all—of whom there are not a few—who find it much easier to sow than to reap. What is here given is taken at random from a variety of testimonials, equally particular and conclusive, contained in Mr. McCormick's hand-bill; and to these, thus selected from many, we append the statement of Mr. BATEMAN, of the Ohio Cultivator:

FRANKFORT, Clinton Co., Ia., Aug. 3, 1846.

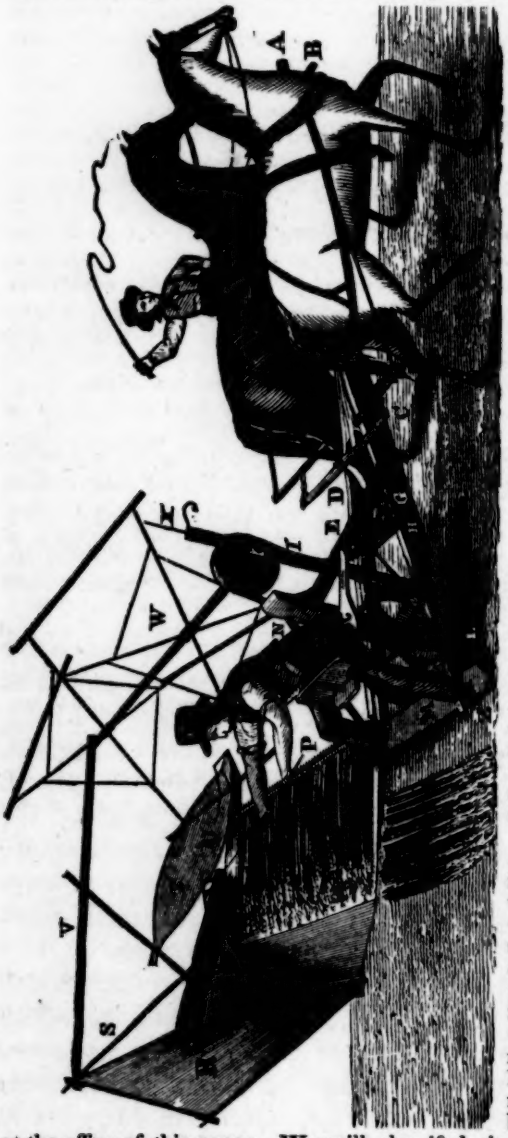
Dear Sir: I have used your Reaper about one-half the last harvest. I cut about 90 acres. The machine did not arrive until we were half done. My wheat was lodged, the ground rough and uneven. I have never before seen as much straw on the same quantity of ground. I can hardly conceive of more unfavorable circumstances than the "Reaper" was placed under, for a trial, yet the machine sustained its previous high reputation as a grain cutter. It performs well in standing grain, or in grain that is lodged. Two hands, one to drive and one to rake, will perform with the "Reaper" as much as eight hands could do with cradles, besides saving from a bushel to a bushel and a half per acre, that any cradler would leave on the ground. The machine is simple in its construction, and not liable, when properly made, to get out of order. If it should happen, any part except the sickle, to get out of order, there is no more difficulty in repairing it than a cradle or mowing-scythe. Yours, L. D. GRIGGS.

CYRUS H. McCORMICK, Esq.

DUPAGE, Will Co., July 22, 1846.

Dear Sir: I take pleasure in communicating to you the result of my operations with your Reaper to the present time, which, I am proud to say, has been of the most satisfactory character. I cut, in nine days, with the Reaper, 150 acres of heavy wheat, since which I have cut 50 acres, and can say that the *work* was done *perfectly*, saving, I am satisfied, not less than a bushel

per acre; and this has been without any repairs or trouble with the machine. It would have required eight good cradlers to have cut my wheat in the time cut by the Reaper; and in addition to the cutting, the wheat was completely raked from the Reaper into gavels ready for binding.



In addition to the saving of grain and labor by your Reaper, it is worthy of remark that a very important consideration with the farmer is the cutting of his wheat rapidly and conveniently, when in a proper state for cutting, without being dependent upon hired labor, and thereby avoiding a very heavy loss from cutting either too early or too late. From these statements every farmer can make his own calculation as to the value of your Reaper. For my own part I consider it, to the Western country, the most important invention of the age, and that it will greatly increase the product of the country, not being able without it to reap so much as can be sowed.

Very respectfully, H. E. TOWNER.

P. S. The foregoing 200 acre completes my harvest of winter wheat, and I am now cutting my spring crop. H. E. T.

We take pleasure in announcing to our readers that Mr. McCormick has made such improvements in his Reaper as are found to greatly facilitate its operation, especially in the work of raking the cut grain from the platform, and that he is now engaged in manufacturing a large number of the machines at Cincinnati, for the supply of the South-western country. He assures us also that the utmost attention will be paid to the character of the workmanship in constructing the machines, so that no fault shall hereafter exist on that score.

From what we have seen of the operation of this machine, and the high testimonials from those who have used it extensively, we are confident that it will do first-rate work in good hands; and it will be seen from the advertisement in this paper that the terms of sale offer the fullest possible guaranty to purchasers. The need of machines for reaping grain was greatly felt by the farmers of Ohio last year, and we doubt not that a large number will be used at the coming harvest. Handbills giving fuller information, and testimonials of the character of the machine, can be obtained of Mr. McCormick, Cincinnati, or at the office of this paper. We will also, if desired, order the machine, for any of our readers who may wish to obtain them. [Ohio Cultivator.

AGRICULTURAL EXHIBITIONS—IN WHAT WAY ARE THEY USEFUL?

THEIR value is to be measured not by the number of people in attendance, nor yet by the number of things exhibited; but by the new facts and valuable addition they bring to the *stock of agricultural knowledge*.

If mere numbers, and admiration, and excitement, be the object, let a militia mustering be advertised at any old field × roads, take care to have a drum and fife with a sprinkling of red coats, and swords, and things that smell of violence and blood. Add to these a dozen prancing stallions, a live bear and a ring-tail tame monkey—not forgetting to have booths for sale of mead and gingerbread, with a barrel of still-burnt whisky in the crotch of a cart-tongue, and the purpose will be fully answered. The throng will be as large as any one can desire, but how many will go away either better or wiser? The whole aim of Agricultural Associations should be to increase and diffuse knowledge, and *spectacles* should be encouraged only as they contribute to that end.

THE PROFITS OF FARMING IN MASSACHUSETTS.

At Albany and Boston, during the sessions of the Legislature, agricultural meetings are held (at Boston, we believe, in the chamber of the House of Representatives) for the interchange of knowledge and the discussion of questions bearing on the landed interest.

A journal which should contain nothing but these discussions would be worth more to the country than the proper journals of legislation, such as they are in some States, and far more edifying than all those papers which are given up to a blind support of this party or that, and to wholesale and indiscriminate abuse of those who differ from them. How much better for members of Legislatures to be thus communing with each other, on matters of the deepest interest to themselves and their constituents, than to be lounging about from tavern to tavern and from morn to noon, drinking and gaming, or engaged in idle, insignificant jesting and ribaldry and frivolous conversation. In that excellent paper, the "Massachusetts Ploughman," we find the following. Although it would be impossible to find room for these discussions as they occur, in the numerous clubs which we rejoice to see are being formed throughout the country, we give the discussion in this case, as it relates to the great question into which all others resolve themselves after all, to-wit: The Profits of Farming. In extending these profits and losses, we have often thought that many small items are omitted which ought to be brought into the account on the credit side of the farm.

Many of these items of rural enjoyment are, in fact, not to be had in the towns for love or money. There you can't enjoy the ripe juicy fruit fresh as you pluck it from the trees, and the fragrant strawberry as it grows upon the vine of your own planting; nor with them the rich cream of the Alderney, the pure secretion of the sweet-scented vernal grass—*anthoxanthum odoratum*. Money won't buy you the fresh egg not yet cold from the nest, that in the country you may eat while the hen is yet cackling in triumph at her great achievement; neither can you be sure, in town, that even your milk has not been in fraudulent proximity to the pump. In winter you are not warmed into good humor with all the world by a large, bountiful, *blazing wood fire*; nor can even Astor's countless millions buy for him, in town, the pleasure of being woke by the matin songs of joyous birds from the dreamless and refreshing slumbers that wait on rural exercises. For what amount of "base lucre" would the man of sensibility exchange the feelings that gladden his heart while he admires the flowers that ornament his breakfast table, and relishes and praises the well-made bread and the nice butter and the rich cream cheeses, that are the pride of his wife's or his daughters' management, and for which no such opportunity or reward is offered to the ambition of city wives and daughters?

True, it may be said we can exist without these small items of refreshment that go, too insensibly, to make up the sum of rural felicity; but if life itself is valued as it should be, for the opportunity it affords to be useful to our fellow men, and for the rational pleasures it brings, surely all these items should go to make up the account in favor of the country.

NINTH AGRICULTURAL MEETING.

THE PROFITS OF FARMING was still the order of last Tuesday evening, and animated statements were made by many of the speakers. Hon. Mr. STARKWEATHER, one of the Vice-Presidents, presided.

Mr. BROOKS of Princeton went into very minute particulars of outlay and income. He was speaking when we entered the Hall, and we lost some of his remarks, which we hope he will communicate for the first page of our next number.

Mr. Brooks estimated that 10 quarts of milk will make a pound of butter; that 10 quarts of skim-milk will make a pound of pork. The cost of keeping a cow well, a little over 50 dollars per year; and the value of her butter one or two dollars more than the keeping. He lets no cattle on to his mowing grounds. Then there was the calf and the manure in addition to the skim-milk. He counts his hay at 6 dollars a ton. Mr. B. said he could make 15 per cent. on all his capital engaged in farming, and he thought any farmer could do the same if he would manage well.

Hon. Mr. CLARK of Walpole said he had in later years been engaged in farming. Some of his land had cost him 60 and some 100 dollars per acre to get it into good grass. Some of his mowing is peat land and some is not. He sows his grass seed in September, and mows his fields three years without manuring; then plows and seeds down again on the furrow; puts no manure but ashes on his upland; prefers dry ashes. A man in Rhode Island purchases leached ashes at 17 cents per bushel, but he would not give it. Dry ashes kill his witch-grass and bring in clover. He thinks as much can be made in farming as in any other business. In his county one can make more than 25 per cent. by growing fruit. The porter apple and the winter pippin always bear a good price, and he had with these scions succeeded well in grafting trees that were 35 years old. One of his neighbors had done so well with fruit as to clear 100 per cent. He had cleared more than 200 dollars on one acre of peach trees.

Mr. BROOKS said, in answer to an inquiry as to selling hay, that he was obliged to use all his on his farm, for he could not buy manure if he would. *He had reclaimed some of his rocky pasture land at a cost of* 100 *dollars per acre, and he was paid for doing it.*

Hon. Mr. CALHOUN said he was much pleased to hear so much testimony in favor of the profits of farming both now and at former meetings. He hoped something would go forth from this place that would encourage young men to consider well their true and permanent interest. Too many men seem to think that farming is the last business to be thought of for profit. But compare the whole profit of farming with the profit derived from other pursuits, and you find that farmers, on the whole, succeed best. Let 100 men go into a city and trade; let 100 go to farming, and at the end of 20 years the 100 farmers will be worth the most money.

It is ascertained that of 100 merchants who had done business on Long Wharf more than 90 became insolvent. So by a record kept at certain banking establishments, it was found that but very few who had done business died worth any property. So at the probate office it was found that 90 per cent. of the estates of traders prove insolvent. The records of the courts, too, will show that those who have taken advantage of the bankrupt act have not, on an average, made a dividend to the creditors of more than two or three per cent. Here are facts that we can resort to and rely upon. In my own observation I have found that systematic, prudent and diligent farmers always succeed.

Here is a foundation that may be built on with more certainty than any other. Yet young men are rushing into cities to make their fortunes. It is all important that the facts which have here been stated, now and at former meetings, should be deeply impressed on young minds. Mr. Brooks says 15 per cent. may be made on capital by any diligent and systematic farmer. Hon. John Lowell said 18 per cent. All this may be done by farming intelligently. He had wondered that farmers generally could get along so well as they actually do in their careless mode of farming. For himself, he had regained his own health by farming. The fresh open air had restored him. He repeated his pleasure on hearing the numerous statements of the profits that may be made in this business. One more consideration should have much weight. It had been truly stated by his venerable friend from Framingham, Major Wheeler, that this business naturally leads the mind to contemplation and to gratitude to the Ruler of the Universe, to whom farmers feel obliged to look for a blessing on their labors. No occupation so directly leads the mind to reflection on the works of creation. All that we eat, drink and wear comes from the ground. In every view this occupation is important.

But we have not yet devised a suitable system of agricultural education. We might easily furnish the means, in our common schools, of showing young men how to analyze soils and learn their different natures. Science should be brought down so as to be clearly understood in order to be useful. There is a bill now in the Legislature to furnish schools for adults. Let us have them for all classes. Minds run to waste. We quit school and are then permitted to think of nothing but hard work.

Major BENJAMIN WHEELER stated that out of 18 cases of bankruptcy, and 18 of insolvency, only one of the debtors was a farmer.

Hon. GEORGE DENNY of Westborough said: As to the statement of 90 and upward in the 100 failing in trade, he was aware that it was not generally believed, but it is true. He had had occasion to examine the records, which prove that out of 1112 persons whose

estates proved insolvent, only 14 were farmers; one of these was a lazy man, and another had been engaged in stage-driving and endorsed paper for his brother. A list from the office of the Secretary of the State would prove the small proportion of farmers who had become bankrupt. Every fourth man in the stores here could be dispensed with; yet numbers are continually rushing here to make their fortunes. No real farmer in this State has failed.

Capt. Benjamin Porter of Danvers said: Not a farmer in Essex County has failed. I have been in trade, and I have been engaged in farming. I have been in debt, and have lain awake many a night to contrive how to take up my notes given in trade. I lost my health, but I have recovered it on my farm. I bought a farm that had been neglected, worn out, for $4,500. It had numerous fruit trees, but it bore no fruit. I commenced by plowing and cross-plowing among the trees. I bought yearly 100 dollars' worth of manure, and on the third year I had 793 dollars' worth of apples. I had a sow that brought nine pigs. When these were sold they brought me 253 dollars. My trees very soon commenced bearing in consequence of breaking the sward. Farming is better than any kind of mechanic employment in Essex County.

There is the Howe Farm, on the Beverly town line, which has been leased out to half a dozen men; all have made money on it by having half the proceeds. Several of these men now own good farms. They purchased them by the profits of farming.

Mr. Lincoln, a member of the House from Worcester, did not think money the sole object; he would not have a man "gain the whole world and lose his own soul." He had made farming profitable in one sense, but in no other: it affords a living for a man and his family, but he cannot become rich. The statement of the gentleman from Princeton, Mr. Brooks, is not satisfactory. Farms are generally incumbered with mortgages. Why is it that farmers are so generally in debt? Some individuals in large towns make a little money by teaming and other business off from the farm; but this is not farming. The same may be said of a few who have a chance to sell milk. But all farmers cannot sell milk. Let a farmer lay out $3,000 in a farm. He will be obliged to economize. His clothing is less expensive than that of mechanics. By living very prudently he can hold his own, but he cannot lay up money. Mr. Lincoln would not have young men led astray by reports of these meetings. His object in speaking was to put people on their guard.

Mr. Denny said there are two sides to every question. He was glad to hear the gentleman from Worcester. He hoped to hear in this place all the objections that can be stated to the profitableness of farming. All of them are readily answered. Twenty years will show clearly who lays up the most money—farmers or those engaged in other pursuits.

Major Wheeler here offered some resolutions which were filed for action at the next meeting.

Mr. Russell, a member, as we learned, from Worcester County, answered some queries proposed by Mr. Lincoln. I leased a farm worth $3,000 at five per cent. The lessee told me he kept five cows on it and sold the *butter;* he did not sell milk. He supported his family on the farm and he laid up $100 a year. He had seven daughters, and he brought them all up well educated. He left the farm in a good state.

The Gill Farm in Boylston, 600 acres, was rented for a number of years. The lessee retired with a handsome property. I have been in trade and I have been on a farm. I prefer farming.

Lieut. Governor Reed expressed his high gratification in learning that farming is connected with so many good things. He thought we had an assembly here of the very best of farmers, and he wished to come again and hear more on the same subject.

Capt. E. Wheeler of Framingham said he had served as a Deputy Sheriff for thirteen years, and though some of the traders there had failed in that time, not an individual whose occupation was farming had become insolvent.

Capt. Porter named two farmers who went to Vermont several years ago; each bought a farm of 100 acres. In a few years one sold out for $15,000, and the other had acquired a handsome property.

Instinct of Birds.—When the lapwing wants to procure food it seeks for a worm's nest, and stamps the ground by the side of it with its feet, after the manner of boys in order to procure worms for fishing. After doing this for a short time the bird waits for the issue of the worm from the hole, which, alarmed at the shaking of the ground, endeavors to make its escape, when it is immediately seized and become the prey of this ingenious bird.

Dung-Heaps.—The temperature of a dung-heap is a pretty correct criterion of the state of fermentation. If a thermometer plunged into it does not rise above 100 degrees there is little danger of too much gaseous matter being lost; if the temperature is higher, means should be taken to check the fermentation.

Good Pay.—In Aberdeen the streets are swept every day, at an annual cost of £1,400, and the refuse brings in £2,000 a year. In Perth the scavenging costs £1,300 per annum, and the manure sells for £1,730. Here, then, is a gain of sterling gold—a premium for saving immortal life.

PRODUCTION OF SUGAR IN THE EAST INDIES.

THE April number of *Hunt's Merchants' Magazine* contains an interesting letter from J. Balestier, Esq., the United States Consul at Singapore, in the East Indies. The letter was not intended for publication, but was addressed to a planter in Porto Rico, and was forwarded, via New-York, to J. N. Balestier, a brother of the American Consul, who took the liberty of transcribing the material parts of it for publication in the Merchants' Magazine. Mr. Balestier has resided in Singapore since the year 1833, and is largely engaged in the business of sugar growing. His intelligence, as well as intimate acquaintance with the commercial and agricultural statistics of the East, entitle his statements to the utmost respect. The present communication relates to the prospective production of sugar, and embraces a sketch of the condition of sugar planting in Java, Cochin China, Siam, &c. It will be read with interest by our numerous subscribers in the sugar-growing region of the United States:

Extracts from the Letter of J. Balestier, Esq.

What with the reduction in the duties in England and America, and the prevailing spirit in the remainder of Europe for cheap sugars, the consumption must greatly increase; and as growers of the article are not prepared to supply this unexpected call, it would seem to follow that, for some years to come, prices will rather advance than decline. No part of America, except the United States, is in a condition to add much to the stock now raised.

There is abundance of first-rate soil, but a great scarcity of laborers; and without them the land has but little value. To this quarter—the eastern hemisphere, abounding in suitable soil and efficient hands—expectation is naturally turned to furnish the increased demand.

But there will be found great obstacles in the realization of this expectation, causing great disappointment. This eastern world, though possessed of unbounded soil and population, is wanting in capital and in enterprising Europeans, without which there can be no considerable addition to sugar production. The natives, left to themselves, are too much wanting in industrious habits, or in ambition of riches, ever to make good a deficiency in so costly and complicated a manufacture as that of sugar. Java, under its system of forced labor, is strained beyond prudence, as is proved by two successive years of famine brought on by turning the industry of that island from rice cultivation—the bread of that country—into other channels, such as indigo, tea, coffee and sugar. The Philippines, vast and rich in soil, are in the hands of pirates and Indians, and by law or habit are rendered unapproachable to foreigners beyond the limits of Manilla, the Capital; and although there is a yearly development of their productiveness, still they are far from being productive to the extent they would be were Europeans permitted to establish themselves in the interior, and turn the population to industrious habits by giving them adequate wages for their labor. China produces much sugar; but as their own consumption is great, and as they even import considerable coarse sugar from Cochin China and Siam, it would seem that no considerable surplus could be looked for from that quarter. Cochin China is in the hands of a despot, who reaps what his people are made to plant, they receiving, either in articles of food, clothing or money, what His Majesty is pleased to give them. Everything comes into his granaries for future disposal, and he alone exports, in his own ships, to this port and to Batavia, whatever is marketable—say about 20,000 piculs of ordinary sugar and some coffee. Siam is another of those vast countries where large quantities of sugar might be grown were it not for the cupidity of its sovereign. He of Cochin China, as I have said, obliges his people to sow, to enrich himself with the reaping, while his brother of Siam encouraged the immigration of colonies of Chinese into his States, to obtain a revenue from the rich alluvial wastes which his own subjects had not energy and industry to cultivate. The Chinese paid a regular fixed rent for their allotments, and their production of sugar greatly increased. But an unlooked-for purchaser made his appearance. Hitherto the Chinese had been free to sell their crops to the highest bidder; but now the King's emissaries demanded the delivery of the sugar at a price fixed by himself, and which, being less than the market value, leaves to his merchant majesty a hand-

some profit on the sales to foreigners. That proceedings so arbitrary should check the manufacture is the natural consequence; and Siam, therefore, will not, for the present, lend a helping hand in replenishing the warehouses of the West with sugar.

I have given you a rapid and, I believe, a correct survey of the capabilities of the principal sugar lands in the East, to meet the new wants expected to arise from a less burdensome tax upon the consumer.

The time, however, will come—must come—when the world will be amply supplied with this article. British India, and the British possessions in the Straits of Malacca, are in a better condition to become producers on a larger scale than any other region. I have already said, in the first part of this letter, that there is abundance of soil and of laborers, but that capital and adventurers were wanting. This is true at present; but will it be so long, after the stability of this branch of industry shall be well established? For many years past, vacillating policies and Tariffs have given anything but security to those engaged in the business of growing sugar; and the consequence has been that capitalists have been unwilling to lend money to carry on or establish an industry universally considered hazardous, except on such onerous conditions as made the unfortunate borrower a bonded slave for life.

The new policy of Governments, which, by the imposition of moderate duties, encourages consumption, gives that stability and security so much wanted, and will lead capital to flow in that channel. That great obstacle removed, adventurers from the West will not be wanting in the plains of over-populated India. Money, obtained at a moderate rate of interest, will enable them to form plantations, and raise and export sugar cheaper than from any other quarter of the globe, unless these shores (the Straits of Malacca), jutting out from India and China, whose population is the densest in the world, should prove an exception.

The shores of the Malaya Peninsula, along the Straits of Malacca, have far greater advantages for the growth of sugar-cane than any portion of British India. The whole extent of country is perfectly healthful to European, Chinese, Indians or aboriginal Malays. In its whole extent it is exempt from any of those terrific and destructive atmospheric convulsions, such as hurricanes, typhoons, or even gales; squalls, only, are occasionally experienced. Its surface is diversified by high mountains and rich valleys, and plains almost interminable, all indicating, by the luxuriant fruit which overspreads them, the fertility of the soil. Large navigable rivers and other water-courses indent the coast, by which the greatest facility would be had in communicating with the interior. Its mineral wealth, in gold, iron, lead, and particularly in tin, is great.

This peninsula, with upward of 500 miles of sea-coast, with the exception of the three small settlements, viz: Singapore, Malacca and Penang, or Prince of Wales Island, is a waste.

Possessing such eminent advantages, what is not that *waste* capable of becoming, with capital at command and cheap labor from India and China close at hand? Nothing is wanting but confidence in the business of raising sugar, to give such an impulse to it within the posssessions of the East India Company, as shall fully meet the probable increased wants of the European and American populations.

Receive, then, my friendly congratulations on what appear to me just-founded prospects of good prices for some years to come; but at the same time make the most of that warning which the untold millions of vacant cane lands, and the untold millions of the free and efficient hands of India—at an average of two Spanish dollars per month, enduring everything—give you. Will you be ready to compete with good sugar, the cost of which, to the manufacturers, shall not exceed one penny sterling, or two cents per pound? There are not those wanting—experienced men in the business—who are ready to prove that, with the plow and steam for helpmates—that is, with improved implements and skill—sugar, nearly white, can be turned out at two cents per pound.

GOD SAVE THE PLOW,

See, how the shining share
Maketh Earth's bosom fair,
Crowning her brow.
Bread in its furrow springs,
Health and repose it brings,
Treasures unknown to kings—
God save the plow!

Look to the warrior's blade,
While o'er the tented glade
Hate breathes his vow;
Strife its unsheathing wakes,
Love at its lightning quakes,
Weeping and woe it makes—
God save the plow!

Ships o'er the deep may ride,
Storms wreck their bannered pride,
Waves whelm their prow;
But the well-loaded wain
Garnereth the golden grain,
Gladdening the household train—
God save the plow!

Who are the truly great?
Minions of pomp and state,
Where the crowd bow?
Give us hard hands and free,
Culturers of field and tree,
Best friends of Liberty—
God save the plow!

☞ A fossil cherry tree was lately discovered in a bed of sandstone, in the Isle of Wight, 200 feet below the level of the earth.

SCRAPS.

INFORMATION WANTED BY THE EDITOR OF THE FARMERS' LIBRARY.—The names of the Chairman and members of the two branches of the Legislatures of the several States, who composed, at their last meeting, the Committees on Agriculture and on Education; and particularly copies of their *Reports* on these subjects. Also printed copies, if to be had, of the Governor's Messages, to see in what terms these two great objects of public interest were referred to.

This request is particularly addressed to the Clerks of the two Houses of the Legislature. The object is the advancement of the public welfare, as far as it depends, as assuredly it does, on improved Education and improved Agriculture, more than on all other earthly concerns.

Where no answer is received it will be reluctantly inferred, though scarcely to be believed, that no Report was made. In such case it is yet more proper that the people should know who of their Representatives were charged with these subjects.

ALDERNEY CATTLE.—Mr. COLT of Paterson, who has already the largest herd of pure Alderneys that we know of, has written to ask Mr. Colman to procure for him, from the Island of Jersey, a choice Alderney cow and bull of the purest stock.

They have paid more attention to this breed of cattle there, it is said, than anywhere else—so much so that the importation of a bull that might stain it with impure blood is strictly prohibited. From this small district it is said that 4,000 cows are annually exported to England to supply the lovers of pure and rich milk and cream with a luxury such as none but Alderneys can yield in such perfection.

☞ THE IRISH IN AMERICA, it is ascertained, send to their poor relatives in Ireland more than a million of dollars a year.

☞ "La Démocratie Pacifique" contains an account of an orang-outang on board the Hull, bound from Sumatra to Rotterdam. The animal had attained so high a degree of civilization that he would never sleep without his night-cap!

"Nero fiddled while Rome was burning."

It is said that never since the establishment of horse-racing in England have there been so many horses in training as there are at present.

SOAP AS A MANURE.—T. Dalton, a silk dyer, says, in the London Agricultural Gazette, that he uses 15 cwt. of soap weekly to discharge the oily matter from the milk, and forming of itself a kind of soap, the whole of which yields from four to six thousand gallons of strong soap-suds per week. This he has lately applied to his farm, and "its effects are most extraordinary." It has been used only one season, and its results cannot be accurately given; but he considers it more powerful than any other manure.

[Southern Planter.

Many barrels of strong soap-suds are annually thrown into the gutter and run to waste from every farmer's laundry. Could not these be poured on the manure heap, or otherwise saved to increase his "bank," and thus help to obviate the necessity of purchasing foreign manures?

[Farmers' Cabinet.

☞ In the Ohio Cultivator we find a communication signed by RICHARD HAINES, of Montgomery Co. Ohio, bearing date March 10, 1847, in which are furnished the following details:

A LOT OF LARGE HOGS.—Mr. H. has raised and fatted, the past season, on his farm (by Nehemiah Gaskill), a lot of 22 hogs, the weight of which is somewhat extraordinary. They were a cross of the Berkshire and Russia breeds; were slaughtered, when only 19 months old, by Mr. Bimm, of Dayton, and the following is the record of the weight of each: 528, 521, 514, 506, 505, 504, 486, 478, 420, 446, 455, 430, 457, 415, 468, 480, 457, 430, 430, 447, 432, 408, 435: Total, 10,222 lbs.

If any can beat this, Mr. Haines would like to hear from them.

☞ At a meeting of the Executive Committee of the New-York State Agricultural Society, on the 4th of April, the Secretary reported that in 19 Counties of this State the yield of Indian corn exceeded 80 bushels per acre; in 11 counties, crops were stated to exceed 100 bushels. The largest yield in Cortland County was 154 bushels; in Oswego, 146; in Orange, 139; in Tioga, 125; and in Oneida, 123 bushels. The largest yield of wheat reported was in Ontario, a fraction short of 60 bushels to the acre on upward of two acres. In eight Counties the yield of oats exceeded 70 bushels per acre; the largest crop was 102 bushels, in Oneida.

[This, of course, refers to *premium crops*. We should like to know whether the whole acre was shelled and measured, and how, and at what season, &c.]

☞ Plants, like living animals, require certain descriptions of food to bring them to a natural state of perfection, and the individual who studies Nature's laws in the management of his crops, and attends rigidly to their requirements, can scarcely fail in being a successful cultivator.

SEX OF FLOWERS.—Temperature has a great influence over the sex of flowers produced by a given plant. A very high temperature caused a watermelon to bear male blossoms only; and a very low temperature made cucumber plants produce female flowers alone.

Mr. Knight had little doubt that the same fruit stalks might be made in the plants first noticed, to support flowers of either sex, in obedience to external causes.

CONSTITUTIONS OF AGRICULTURAL CLUBS AND SOCIETIES.—It is highly gratifying to see that these associations are multiplying fast, all over the country. We are sometimes inquired of, for sketches of constitutions. The simpler the form of these the better. Only let five or six zealous farmers get together, "any way they can fix it," and the association will model itself There is truth in the French proverb,

"*Dieu donne fil a toile ourdie.*"

In the mean time we will thank any of the secretaries who have printed forms at hand, and to spare, to send us copies, for the information of those wishing to get up such societies. From various forms, one may be arranged to suit the differing circumstances of various localities.

MORE GOOD SIGNS.—We have pleasure to learn by our correspondence, that gentlemen of intelligence and influence in and about Winchester, Virginia, are anxious for the establishment there of a good agricultural training-school. There could not be found in the Union a more inviting and eligible locality. It will be an indelible reproach to that and all other States that may neglect to establish *Normal Schools* as nurseries for rearing instructors to supply the establishments which the public sentiment will soon be calling for in all parts of the United States.

☞ Mr. Youatt, the eminent veterinarian, author of the "Treatise on the Horse," and other works of a like nature, committed suicide by taking poison. [London Farm. Mag.

☞ Mr. James Gardiner, the inventor and maker of the celebrated turnip-cutter, died on the 26th of December, at Banbury.

Why should not honorable obituary notice be taken of all useful inventors and writers, as well as of politicians and warriors of high and of low degree?

IRISH POTATOES.—In an early number we shall tell how to raise varieties from the seed; and, what many will think of more immediate importance, how to cook them; for many a wise man would be at a loss *how to boil a potato!* The French calculate about sixty different modes of dressing them, and of dressing eggs. We shall give a few of the simplest.

THE WESTCHESTER SOCIETY'S Constitution very wisely provides that there shall be a "Farmers' Club" established in each town of the county, composed of the Vice-President, Board of Town Managers, and the members of the (county) Society of each town respectively.

These Farmers' Clubs, where they have the zeal to meet frequently and give in their experience, are of more real utility than County Societies with their once-a-year meeting and exhibition for a day—all hurry and bustle, and off again.

CATTLE IMPORTED BY THE MASSACHUSETTS AGRICULTURAL SOCIETY.—The clear and interesting account of this recent importation of Ayrshire and North Devon cattle, prepared by Mr. PHINNEY on behalf of that exemplary Society, has been copied from THE FARMERS' LIBRARY into a new, well managed and improving English agricultural journal, "THE PLOW," to which we are indebted for the article on the Philosophy of Fattening Cattle, and for other items and essays of much value.

WHEAT.—The best is said to contain about three-fifths of starch and two-fifths of gluten, and on the due proportion of these two substances in flour the goodness of the brand depends Hence it is said that to insure the best bread it is expedient to mix the flour of different wheats together.

RELATIVE VALUE OF FOOD FOR CATTLE.—100 lbs. of good meadow hay are about equal to 500 of Swedes, 500 of mangel-wurzel, 450 of carrots, 700 to 800 of common turnips, or perhaps 400 of parsnips.

KEEPING EGGS.—The Editor of the Boston Cultivator recommends, from trial, the following: Put into the cask a layer of plaster of Paris, first covering the bottom of the cask with plaster, and then alternate layers of each in such a manner that one shell shall not touch another. He states that he has kept them in this manner a year perfectly good.

The following mode of keeping has been patented in England, and extensively used in this country: 1 bushel quick-lime; 2 lbs. salt; ¼ lb. cream of tartar. Mix the same together with as much water as will reduce the composition to a consistency that an egg when put into it will swim. It is said that eggs have been kept in this way sound for two years.

THE SCAB ON SHEEP.—Lowe, in his work "On Practical Agriculture," gives the following directions for the cure of scab: "A decoction of tobacco and spirit of turpentine, with the addition of a little soft soap and sulphur vivum. The decoction of tobacco may be obtained by boiling the tobacco in brine or salt water. The liquid, when prepared, is applied from a vessel like a tea-pot with a spout, or from a bottle with a quill passed through the cork. Lay the wool back in lines, so as to expose the skin, and pour out the liquid along the lines upon the skin."

MILK-PANS—GLASS *vs.* ZINC.—It may not be uninteresting to many of your readers to have the result of some experiments I have made testing the quality of glass *versus* zinc milk-pans. I have put it in a tabular form, which you will subjoin to this letter if you deem the matter worthy of a place in your columns. By this it will be seen that about from 30 to 50 per cent. more cream can be raised from milk set in glass than milk set in zinc. Why should this be? I can only account for it by the fact of the glass being perfectly pure and free from any chemical action upon the milk. The glass pans are the manufacture of Messrs. James Hartley & Co., 43 Upper Thames-street. GEORGE W. KIRKBY.

Romford Dairy, Old-street Road.

P. S.—I think a greater proportionate quantity of cream can be raised from small than from large glass pans.

Date.	Glass or zinc.	Quantity of milk.	Number and size of pans.	Time it stood.	Cream produced.	Remarks.
Jan. 12	Zinc.	6 quarts.	1 20 inches.	23 hours.	1½ gills.	
.. 12	Glass.	6 quarts.	1 20 ..	23 ..	2 ..	Being ½ more.
.. 13	Glass.	12 quarts.	6 16 ..	23 ..	4½ ..	Being at the rate of ¾ of a gill more on every 6 qts.

[English paper.

We hope the above may catch the eye of our friend, Mr. Dummer, of Jersey City, or some other glass manufacturer who may be disposed to bring this article into use. A public-spirited friend, an amateur farmer, authorizes us to bespeak two dozen "anyhow."

PRICES CURRENT.

[Corrected, May 22, for the Monthly Journal of Agriculture.]

ASHES—Pots, 1st sort	℔ 100 lb.	5 —	@— —
Pearls, 1st sort, '46		6 50	@— —
BEESWAX—American Yellow		— 25½	@— 26
CANDLES—Mould, Tallow	℔ lb.	— 10½	@— 12
Sperm		— 31	@— —
COTTON—From	℔ lb.	— 11	@— 14
COTTON BAGGING—American		— 13	@— —
CORDAGE—American	℔ lb.	— 11	@— 12
DOMESTIC GOODS—Shirtings	℔ y.	— 5	@— 11
Sheetings		— 6½	@— 15
FEATHERS—American, live		— 28	@— 33
FLAX—American		— 7½	@— 8½
FLOUR & MEAL—Genesee	℔ bbl.	8 56½	@ 8 62½
Troy		— —	@— —
Michigan		8 56½	@ 8 62½
Ohio, Flat Hoop		8 56½	@ 8 62½
Ohio, Round Hoop		— —	@— —
Ohio, via New-Orleans		— —	@— —
Pennsylvania		— —	@— —
Brandywine		— —	@— —
Georgetown		— —	@— —
Baltimore City Mills		— —	@— —
Richmond City Mills		— —	@— —
Richmond Country		— —	@— —
Alexandria, Petersburg, &c.		— —	@— —
Rye Flour		6 50	@— —
Corn Meal, Jersey and Brand		5 —	@ 5 25
Corn Meal, Brandywine	hbd.	— —	@— —
GRAIN—Wheat, White	℔ bush.	2 —	@ 2 03
Wheat, Red		— —	@— —
Rye, Northern		1 37½	@ 1 43¾
Corn, Jersey and North	(meas.)	1 07	@ 1 09
Corn, Southern	(measure)	1 06	@ 1 08
Corn, Southern	(weight)	— —	@— —
Oats, Northern		— 65	@— —
Oats, Jersey		— —	@— —
HAY—North River in bales	℔100lb	— 62½	@— 70
HEMP—American, dew-rotted	ton140	—@155	—
" " water-rotted	140	—@200	—
HOPS—1st sort 1846		— 8½	@— 10
IRON—American Pig, No. 1		— —	@32 50
" Common		22 50	@25 —
LIME—Thomaston	℔ bbl.	— 80	@— 85
LUMBER—Boards, N.R.,	℔M. ft. clr.	30 —	@35 —
Boards, Eastern Pine		— —	@— —
Boards, Albany Pine	℔pce.	— 10	@— 18
Timber, Georgia Pine	℔M. ft.	27 50	@— —
Staves, White Oak, pipe	℔ M.	50 —	@— —
Staves, White Oak, hhd		40 —	@— —
Staves, White Oak, bbl		30 —	@— —
Staves, Red Oak, hhd		24 —	@28 —
Hoops		20 —	@30 —
Scantling, Eastern		— —	@— —
Scantling, Oak		— —	@— —
Timber, Oak	℔ cubic foot	— 20	@— 30
Timber, White Pine		— 13	@— 20
Timber, Georgia Yellow Pine		— 24	@— 28
Shingles	℔ bunch	1 62½	@— —
Shingles, Cedar, 3 feet, 1st quality		26 —	@— —
Shingles, Cedar, 3 feet, 2d quality		22 —	@24 —
Shingles, Cedar, 2 feet, 1st quality		17 —	@18 —
Shingles, Cedar, 2 feet, 2d quality		15 —	@16 —
Shingles, Cypress, 2 feet		13 —	@14 —
Shingles, Company		28 —	@30 —
MUSTARD—American		— —	@— —
NAILS—Wrought, 6d to 20d	℔ lb.	— 10	@— 14
Cut 4d to 40d		— 4½	@— 4¾
PLASTER PARIS—℔ ton		2 25	@— —
PROVISIONS—Beef, Mess,	℔ bbl.	11 50	@12 25
Beef, Prime		8 50	@ 9 25
Pork, Mess, Ohio, old		— —	@15 —
Pork, Prime, Ohio, old		13 —	@— —
Lard, Ohio	℔ lb.	— 9	@— 10½
Hams, Pickled		— 8¾	@— 9½
Shoulders, Pickled		— 6¼	@— 7¼
Sides, Pickled		— —	@— —
Beef, Smoked	℔ lb.	— 12	@— 12½
Butter, Orange County		— 25	@— —
Butter, Western Dairy		— 20	@— 22
Butter, Grease		— —	@— —
Cheese, in casks and boxes		— 7½	@— 8
SEEDS—Clover	℔ lb.	— 6½	@— 7
Timothy	℔ tierce	13 —	@18 —
Flax, Rough		— —	@10 —
SOAP—N. York, Brown	℔ lb.	— 3½	@— 5½
TALLOW—American Rendered		— 8½	@— 9
TOBACCO—Virginia	@ lb.	— 2	@— 7
North Carolina		— —	@— —
Kentucky and Missouri		— 3	@— 7
WOOL—Am. Saxony, Fleece	℔ lb.	— 40	@— 45
American Full Blood Merino		— 35	@— 38
American ¼ and ⅜ Merino		— 28	@— 32
American Native and ½ Merino		— 25	@— 27
Superfine, Pulled Country		— 30	@— 31

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